Cottonwood Valley Charter School

Safe Routes to School
Phase I Plan

Socorro, New Mexico

Cottonwood Valley Charter School
and
Zimmerly Elementary School

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Zimmerly Elementary School

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Introduction

We have seen the line of cars clog the road in front of our schools, engines idling as they inch their way forward, with impatient children squirming in the back seat. We have seen children walking in the road on their way to school, scurrying across a major street, or dodging cars in the school driveway. While going to school is a basic part of family life, the simple act of getting to and from school has become increasingly difficult. Thirty years ago, more than two-thirds of children in the U.S. walked or biked to school. Today, that proportion has dropped to just 13 percent. At Cottonwood Valley Charter School (CVCS), 22 percent walk or bike to school, and at Zimmerly Elementary School (ZES), the proportion is 8 percent. Considering the chaos around a school during the morning drop-off, it is not surprising that parents are reluctant to let their children walk or bicycle to school. Development in our communities has focused on motorized vehicles for decades, and Socorro is no exception, resulting in an environment that makes driving a challenge for both motorists and pedestrians. Sidewalks, crosswalks, and other bicycle and pedestrian facilities often do not exist or are in poor condition. Naturally, parents are concerned about the safety of their children.

According to the National Center for Safe Routes to School (saferoutesinfo.org), fewer than 15 percent of all school trips nationally are made by walking or bicycling, with one quarter made on a school bus and with over half of all children arriving at school in private automobiles. The high number of motor vehicle trips to school only adds to the traffic congestion around schools and creates lines of traffic in school drop-off zones, with increasingly frustrated drivers and rising air pollution. This vicious cycle continues until fewer and fewer parents are comfortable with their children walking or bicycling to school. These problems not only cause logistical problems but actively promote health problems such as increased asthma rates among children and dramatically rising childhood obesity rates, due in part to a lack of physical activity.

Through the Safe Routes to School Program (SRTS), we can create a safe environment in our school neighborhoods. By promoting options such as encouraging more students to ride the bus if they live more than a mile from school, Socorro can lower family vehicle traffic around our schools. Positive community awareness is now high in Socorro; neighbors, business owners, teachers, parents and police have often approached SRTS data-collection volunteers, asking questions and providing opportunities for volunteers to explain the safe-routes concept.

Purpose of the SRTS Plan

The plan's purpose is to create a guide for our current and future SRTS activities that qualifies Socorro for NM SRTS Phase II funds. This plan identifies specific goals and improvements using the 5 E's (engineering, education, encouragement, enforcement and evaluation) for providing a safer environment for walking and bicycling to school within the one mile of each school's campus. A major goal is lowering family vehicle usage by increasing the number of students living within one mile of campus who walk or bicycle to school and, for students living more than a mile away, by increasing the number of students riding the bus.

Development Process

Socorro's SRTS plan has been developed using the New Mexico State and Federal guidelines. Resources used included tally sheets, parent survey sheets, walk-ability and bike-ability checklists, mapping, the 5 E's SRTS Guides and engineering assessments for intersections and street segments. The Socorro SRTS Coordinator has worked closely with both CVCS and ZES school staff, students and parents, and he has worked with City of Socorro personnel to collect data and to assess campus and neighborhood conditions.

Socorro's SRTS Phase I Plan has been overseen by the Fitness and Nutrition Committee, which is a sub-committee of Socorro County Options Prevention & Education (SCOPE).

Team Members and Roles

Implementers
CVCS/ZES students and teaching staff
CVCS/ZES parents
Michael Hanauer, SRTS Coordinator
Karin Williams, CVCS Principal
Rey Carrejo, ZES Principal

Additional Partners
Dr. Cheryl Wilson, Socorro School District Superintendent
Pat Salome & Jay Santillanes, City of Socorro Clerk's Office
Johnny Mounyo, Middle Rio Grande Conservancy District
Gerry Klinglesmith, Socorro Girl Scouts Troop Leader
Annabell Romero, Socorro Consolidated School District Busing Director
Socorro Fitness and Nutrition Committee
Socorro Police Department
Socorro County Sheriff Department
Socorro Department of Health
Socorro SCOPE
Socorro County Government

Participants
CVCS/ZES student and teaching staff
CVCS/ZES parents
Neighborhood residents

Decision-makers
City of Socorro: Jay Santillanes and Pat Salome
Socorro Fitness and Nutrition Committee; Nadine Ulibarri-Keller, Wes Young, Ronna Kalish,
New Mexico Tech Performing Arts Series Director
Michael Hanauer, SRTS Coordinator
Karin Williams, CVCS Principal
Rey Carrejo, ZES Principal
Dr. Cheryl Wilson, Socorro School District Superintendent

SRTS program leaders
Michael Hanauer, SRTS Coordinator
Karin Williams, CVCS Principal
Rey Carrejo, ZES Principal

Community Characteristics and Background

Socorro is one of New Mexico's oldest communities, dating back over four centuries. Our city's population is near 9,000, with the total county population around 18,000. Socorro has a strong history of family and community. Our economy is slow growing and generally stable, with New Mexico Tech and city/county government being the largest area employers. Median household income is modest to low, compared to either New Mexico's average or the national average. Median household income for Socorro is $28,942; New Mexico's is $43,028, and the national average is $52,029, based on 2009/2010 statistics.

Our community started developing streets prior to anyone envisioning the automobile. Many of our streets have curves and narrow widths, creating pinch points that limit effective design for safe separation of walkers and bicyclists from vehicle traffic. Many of our intersections are not square and come together skewed or off center, adding to safety concerns. Like many American communities, Socorro has placed significant emphasis on vehicle traffic flow; walking/bicycle needs require more emphasis to create balance. Many of our sidewalks have dated markings showing their creation back to the 1930's, and these sidewalks require improvement. In many of our neighborhoods we lack sidewalks, continuity and crossings. Narrow streets with small or no public easements have placed many obstacles (signage and utility poles) in sidewalks, thereby limiting their function.

School Backgrounds

Cottonwood Valley Charter School (CVCS) is a K-8 public charter school within the Socorro Consolidated School District. The school's nine grades (K-8) have a maximum enrollment cap of

170 students, with one class per grade, and a maximum of 20 students per grade. The school holds a spring lottery for filling openings for the following school year.

CVCS is centrally located in Socorro, in an established and older neighborhood at 201 Neel Street. Neel is a wide street with adequate bicycling shoulders, but it has no speed bumps or flashing signals. There are sidewalks on both sides of Neel Street, but the campus lacks continuous sidewalks on the other adjacent streets. A school crossing guard stands at the northwest corner of CVCS (Neel and Western Avenue) each morning and afternoon. The student drop-off and pick-up area has been changed to an off-campus location on West Place, which provides a safe separation of campus traffic from pedestrians. These students walk about one quarter of a block to school from the drop-off area. A new campus entrance on the east side provides walkers and bicyclists campus access without any vehicle traffic. Another entrance at the southeast end of campus does not have a crossing guard and is open to vehicle traffic. Bordering the southeast end of campus is an arroyo that is dry the majority of the time and, as such, is not considered a hazard for busing purposes. Near the southeast campus entrance where the arroyo crosses Neel, there is a considerable "dip" in the road that encourages some drivers to use of excessive speed; the dip also reduces driver visibility of pedestrians. The bus drop-off and pick-up is a pull-out area on Neel Street that provides adequate student separation from vehicle traffic. Traffic on Neel is often heavy at 8 a.m. and 3 p.m. when school is in session. The traffic is largely general neighborhood traffic, with school-related traffic totaling less than 20 percent. Campus buildings are made up of seven temporary mobile trailers and a new permanent multipurpose building on the northwest corner of the campus. There is minimal landscaping and no grassed-in play area. When this type of recreational area is needed, the children generally walk to an area three blocks away on the New Mexico Tech grounds. An additional park south of the school and next to the drop-off and pick-up area offers another recreational choice. The most pressing issues affecting the campus safety are the Neel Street traffic speeds, traffic volume, and poor visibility with road dip through the arroyo.

Zimmerly Elementary School (ZES) is a public 4th and 5th grade school within Socorro's public school system. The school's two grades include about 200 students, with class sizes typically ranging from 18 to 22 students. ZES is centrally located in Socorro in an established and older neighborhood, at 511 El Camino Real (Middle Road). This is a recently constructed school with a large fence and an enclosed grassy playground area. The City of Socorro recently repaved, established share-the-road bicycle lanes, and installed sidewalks and speed bumps on the main route to Zimmerly on School of Mines Road. One crossing guard is present there, staffed by school personnel; no crosswalk directly connects to school grounds. A flashing light along both east and west lanes of School of Mines warns drivers of the approaching school zone. Only pedestrian/bicycle and bus access is allowed into school from this entrance. The other road bordering the campus is Middle Road and is sometime referred to as El Camino Real, as indicated by the school's address. This road is on the north and east edge of campus and is designated a "hazardous" area, allowing children that live in these neighborhoods to be eligible for busing. The "hazardous" designation is caused by Middle Road's roads winding narrow lanes, with no sidewalks or space to construct sidewalks. The main vehicle campus entrance is from Middle Road. This entrance is for student drop-off and pick-up and the campus parking lot. Traffic is often moderate at 8 a.m. and 3 p.m. when school is in session. Greater than 80 percent

of the traffic is campus related. The mixing of student drop-off traffic with campus parked vehicles has caused visibility and safety issues. Too many family vehicles exiting the drop-off area through the parking-lot exit lane use excessive speeds.
The largest issues affecting the campus safety are:

- Middle Road hazards include narrow choke points, an irrigation ditch, excessive traffic speeds and volume, along with poor visibility on curves.
- Walkers and bicycling students must mix with family vehicle and busing traffic.
- Additional safe walking/bicycling campus entrances are necessary for the south and east neighborhoods.

SRTS Community and School Goals

The Socorro SRTS goals include the following essential aims:

- Enable and encourage children of all abilities who live within one mile of their school to walk and bicycle to school.
- Make walking and bicycling to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age.
- Facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.
- Reduce conflicts between cars, buses and students.

School Data Summaries

Data Summary for CVCS

At Cottonwood Valley Charter School, 22 percent of students walk or bicycle to school. Although 50 percent of the students qualify for busing, only 16 percent actually do ride a bus, and 59 percent arrive at school by family vehicle. Actual drop-off observations support tally-sheet data for the above statistics. CVCS has absentee counts of about 3.5 percent, based on the tally-sheet data. CVCS parents have received encouragement from the school administration and staff positively increasing walking or bicycling to 46 percent above the national average (22 percent versus the national average of 13 percent). Two thirds of CVCS families filled out parent surveys indicating a strong interest in and understanding of the benefits of walking and biking to school. According to the survey results, 74 percent of CVCS parents recognize that the school is encouraging walking and biking, 64 percent of CVCS parents recognize these activities as potential fun for their child, with 31 percent reporting no opinion and 86 percent recognizing these activities as being healthy. Most of the traffic on Neel Street during drop-off and pick-up times is community related, while only 19 percent is school related (family and teacher vehicles).

An area for improvement is the CVCS rate of students using the school bus. Encouraging school bus ridership can significantly reduce family vehicle traffic. One hundred students arrive at school in about 59 family vehicles. This is a high student/vehicle ratio that reflects the school's high sibling ratio (81/170 students), with many vehicles delivering two or three students. Encouraging walking, bicycling and busing could lower the family vehicle percentage from nearly 60 percent to 40 percent. CVCS's most pressing safety needs involve Neel Street's traffic speed, improved school-zone visibility and driver awareness on this main throughway.

Data Summary for Zimmerly Elementary School

At Zimmerly Elementary School, 8 percent of students walk or bicycle to school. Seventy percent qualify for busing, with 42 percent riding the bus and 41 percent arriving at school by family vehicle. An actual drop-off observation count differs from tally-sheet data (118 versus 80 family vehicles) and places the family-vehicle proportion near 60 percent. ZES has absentee counts of about 9 percent, based on the tally-sheet data. ZES's school trips made by walking or bicycling are 46 percent below the national average. Sixty-one percent of ZES families filled out parent surveys, which indicates a strong interest in and cooperation with their school. Seventy-six percent of ZES parents indicated that the school neither encourages nor discourages walking and biking, 53 percent of ZES parents recognize these activities being fun for their child, with 38 percent reporting no opinion; and 81 percent recognize these activities as being healthy. Most of the traffic on Middle Road during drop-off and pick-up times is school related, with 84 percent being family and teacher vehicles.

An area for improvement is the ZES rate of students walking and bicycling to school. Encouraging walking and bicycling to school can have the significant impact of lowering family vehicle traffic. Currently, 120 students arrive to school in about 118 family vehicles. Encouraging walking, bicycling and busing could lower the family vehicle percentage from nearly 60 percent to 40 percent. ZES's most pressing safety needs include the Middle Street hazard, separated campus entrances for walkers and bicycles from motorized vehicles and drop-

off/pick-up congestion.

In comparing the two schools, we find that both schools have a high proportion (nearly 60 percent) of students arriving by family vehicles. CVCS's bus ridership is significantly below the national average, and ZES's is above. CVCS's walking and bicycling participation is significantly above the national average, and ZES's is below.

Qualitative Data Collected

Cottonwood Valley Charter School

Below are some of the comments collected from interviews with school's principal, teachers, board members, students, parents, and neighbors:

- Traffic speeds on Neel Street are too fast. Although the posted speed for this time period is 15 mile per hours (mph), many cars exceed that speed. During a day of scheduled observation, approximately 407 vehicles traveled on Neel Street between 7:45 a.m. and 8:25 a.m. Estimated speeds were: 20 percent at 15-25 mph, 50 percent at 25-30 mph; 25 percent at 30-35 mph and 5 percent at greater than 35 mph.
- Visibility at Neel Street's arroyo drainage ditch is limited for drivers, bicyclists and walkers. Drivers have been observed to use excessive speed through Neel Street's arroyo drainage ditch as if it were a thrill ride.
- Parking at the school is poorly organized and reduces potential available parking spaces.
- The newly constructed off-campus car drop-off/pick-up area located on West Place is working well. This location and design effectively separates walker/bicyclist, busing and family-vehicle zones and improves campus safety. The school supports giving priority to convenient campus locations for walking, biking and busing zones over car drop-off/pick-up.
- Some driver confusion and congestion is apparent at the new student drop-off/pick-up location. Too many drivers are stopping at the beginning of the circle drive to drop-off/pick-up students, resulting in children who have to maneuver between the cars. Drivers need to be encouraged and directed to use a drop-off and pick-up staging area near the park entrance on the far side of the drop-off/pick-up circle lane.
- At the West Place student drop-off/pick-up area, the no-left-turn from West Place's family vehicle student drop-off/pick-up sends traffic to the right and is overloading the neighborhood south of campus. This right-turn-only traffic is overloading the neighborhood all the way to the Reservoir/Grant intersection, particularly in the morning.
- Excessive speed is being used by traffic approaching the school campus from Western Street. Improving the school zone signs and adding a speed hump or raised table before the curve approaching campus would reduce driver speeds and draw attention to the school zone.
- Bike racks are located in front of the new multipurpose building. This is a good location requiring 200 feet of inside campus sidewalk and a walker/bicyclist exit near the Neel Street and Western/Nelson crosswalk waiting pad.
- Parent survey comments identified issues affecting parent decisions regarding whether to allow their children to walk or bicycle to school. Key comments were concerned with

1) the distance to school, 2) the amount of traffic, 3) traffic speeds, 4) the need for safe crosswalks and 5) weather.

Conclusion: SRTS improvement priorities for CVCS need to focus on reducing traffic and traffic speeds and designing safer crosswalks, primarily on Neel Street.

Zimmerly Elementary School

Below are some of the comments collected from interviews with school's principal, teachers, students, parents, and neighbors:

- Traffic speeds on Middle Road are too fast.
- Visibility on Middle Road is limited as the road becomes constricted between the irrigation ditch and homes near the road at the school's main vehicle entrance.
- The campus has only one safe entrance. Half of Zimmerly neighborhood is prevented from having safe walking and bicycle access to school because of the Middle Road hazards. Students south and east of campus who walk or bicycle have to trek multiple extra blocks around campus to enter through the sole campus entrance on School of Mines Road that is shared as the bus entrance.
- The only distinct separation of campus traffic is between buses and family vehicles. Walkers and bicyclists enter the campus by first mixing with bus traffic and then drop-off/pick-up family vehicle traffic.
- The bicycle rack in front of the main school entry door has a maximum storage of 10 bikes. Additional bike storage racks could be placed immediately to the west of the front door on a dedicated cement pad near the flagpole area.
- There is too much Middle Road traffic; greater than 80 percent of it is school-related traffic.
- The school's teacher parking mixes with student drop-off/pick-up family vehicle traffic.
- The long straight exit lane through the teacher parking lot encourages some parents of the drop-off/pick-up family vehicle traffic to speed through the school's parking lot areas. Observation counts show nearly 20 percent of family vehicles exceed 20-25 mph speeds through the back side of the parking lot as drivers exit.
- School of Mines Road improvements have been effective in reducing traffic, traffic speed and walking/bicycle safety.
- The School of Mines Road entrance needs improvements for walking and bicycling safety into campus. This is the bus entrance and the fenced walkway separating the walkers and bicyclists from the buses is on the wrong side of the street. Moving the walker/biker entry lane to the south will provide students a continuous trail that does not close the bus lane after they have entered the campus.
- Can there be new safe additional entrances to campus for walkers/bicyclists?
    - How about a south entrance from the arroyo ditch access road behind the parking lot? Bring students on a parallel but separate walking and bicycling trail through the Catholic Church property to the new south entrance?
    - Can the Middle Road hazard be fixed and an east entrance added?

- Parent survey comments identified issues effecting parent decisions to allow their child to walk or bicycle to school: 1.) Distance to school, 2.) Safe crosswalks, 3.) Traffic speeds, 4.) Amount of traffic 5.) Weather
  Both school's parents have the same first five issues only in different orders.

  Conclusion: SRTS improvement priorities for ZES need to focus on new safer crosswalks, traffic speeds and traffic amount.

Survey Data and On-site Observation Data

Information gathered from tally count summaries, parent surveys, busing rosters, school rosters and on-site observations.

CVCS Summary

- 56.5 percent of the 170 students live within one mile of the school: 96 students.
- 38.2 percent of the 170 students live within three quarter mile of the school: 65 students.
- 24.7 percent of the 170 students live greater than two miles from the school: 42 students.
- 21.8 percent of the 170 students regularly walk, bicycle or scooter to school: about 37 students.
- 3.5 percent of the 170 students were absent on tally-sheet days: 6 students.
- 50.0 percent of the 170 students qualify for busing: 85 students.
- 16.0 percent of the 170 students actually ride the bus on any giving day: 27 students based on the tally sheets.
  - Only 1/3rd of the students that qualify for busing are being transported by bus.
  - Near 2/3rd of the students that qualify for busing are being transported by family vehicles.
- 58.8 percent of the 170 students are being transported by family vehicles: 100 students from tally sheets.
- Family vehicle drop-off and pick-up counts range from 55 to 60 vehicles suggesting car pooling or multiple sibling delivery and pick-ups per vehicle. Total school related traffic is 74-78 vehicles (family vehicles ~59, teachers ~17). Many of the family vehicles were observed dropping-off 2 or 3 students.
- 47.6 percent of the 170 students are siblings, 81 students.
- Over 80 percent (331/407) of Neel Street traffic are non-school neighborhood vehicles.

Data Analysis Notes

Cottonwood Valley Charter School

Data Sources: Student Roster Sheets; 3/1/11 Bus Transportation Roster; 2/16/11

Data Summary:

Students	Distance of home (miles)	Walk Bike Fam.Veh.	Bus	Bus Percentage
14	0-0.25	12	2	1.18%
12	0.25-0.50	11	1	0.59%
39	0.5-0.75	26	13	7.65%
31	.075-1.0	19	12	7.06%
22	1.0-1.5	11	11	6.47%
4	1.5-2.0	0	4	2.35%
48	2.0+	6	42	24.71%
170		85	85	50.00%

Data Analysis Notes

Cottonwood Valley Charter School

Data Sources: Data Tally Sheets; 8/24/10

Grade	Students	Walk	Bike	Bus	Car
K	20	1	0	4	15
K	19	4	0	4	11
1	18	3.5	0	0.5	14
1	20	3.5	1	2.5	13
2	20	2.5	1	2.5	14
2	20	3	1	3	13
3	18	1.5	2	1.5	13
3	18	2	2	2	12
4	19	0.5	3	5.5	10
4	19	0.5	3	4	11.5
5	17	1	3	4	10
5	18	2	3	4	9
6	18	2.5	3	4	8.5
6	19	2	3	3.5	10.5
7	17	1	2	4	10
7	18	1	2	4	11
8	16	2	6	1.5	6.5
8	14	0	6	0.5	7.5
Student T.	164	16.75	20.5	27.5	99.75
percentage		10.21%	12.50%	16.77%	60.82%

ZES Summary

- 51.8 percent of the 197 students live within one mile of the school: 102 students.
- 37.6 percent of the 197 students live within three quarter mile of the school: 74 students.
- 10.1 percent of the 197 students live greater than two miles from the school: 20 students.
- 8.1 percent of the 197 students regularly walk, bicycle or scooter to school: about 16 students.
- 8.6 percent of the 197 students were absent on Tally Sheet days: 17 students.
- 69.5 percent of the 197 students qualify for busing: 137 students.
- 42.1 percent of the 197 students actually ride the bus on any giving day: 83 students based on the Tally Sheets.
    - 60.5 percent of the students that qualify for busing are being transported by bus.
    - 39.5 percent of the students that qualify for busing are being transported by family vehicles.
- 41.1 percent of the 197 students are being transported by family vehicles: 81 students from Tally Sheets.

    ***Actual observation counts differ from Tally Sheets data (118 verse 80 family vehicles) placing the family vehicle proportion near 60percent. Walking and bicycling number are equal or lower that Talley Sheet Data which also indicated bus ridership is lower than reported Tally Sheet data.*
- Family vehicle drop-off and pick-up counts range from 95 to 118 in both morning and afternoon. These actual observed vehicle counts are significantly higher than the tall-y sheet data.
- 9.1 percent of the 197 students are siblings: 18 students.
- Middle Road vehicles have been counted at 165 to 170 vehicles during the morning drop-off time of 7:55 to 8:25 a.m., with 84 percent (142/168) of the traffic being school-vehicle related.

Data Analysis Notes

Zimmerly Elementary School

Data Sources: Student Roster Sheets; 3/9/11 Bus Transportation Roster; 1/4/11

Data Summary:

Students	Distance of home (miles)	Walk Bike Fam.Veh.	Bus	Bus Percentage
2	0-0.25	0	2	1.02%
19	0.25-0.50	8	12	6.09%
53	0.5-0.75	21	32	16.24%
28	.075-1.0	11	18	9.14%
48	1.0-1.5	14	33	16.75%
27	1.5-2.0	6	20	10.15%
20	2.0+	0	20	10.15%
197		60	137	69.54%

Data Analysis Notes

Zimmerly Elementary School

Data Sources: Data Tally Sheets; 8/23/10 to 11/23/10

Grade	Teacher	Students	Walk	Bike	Bus	Car	Comments
5	Clause	23.5	2	1	7	13.5	
5	Claussen	21.5	1	1	7	12.5	
4	DiBella	11	0	0	7	4	
4	DiBella	10	0	0	8	2	
5	Cantor	20	0.5	0	10	9.5	
5	Cantor	19	0.5	0	9.5	9	
5	Speer	19.5	4	0.5	10	5	Tally Errors
5	Speer	20.5	4.5	0.5	8.5	7	Tally Errors
5	Chadde	15	1	1	5	8	Tally Errors
5	Chadde	16	2	1	6	7	Tally Errors
4	Adamson	18	2	0	4	12	Tally Errors
4	Adamson	22	2	1	5.5	13.5	Tally Errors
5	Vinson	14	1.5	0	6.5	6	
5	Vinson	16	2	1	9	4	
4	Lee-Chadde	17.5	0	0	11	6.5	
4	Lee-Chadde	17	0	0	11	6	
4	Molloy	18	1	0.5	8.5	8	Est'd; never turned in
4	Molloy	18	1	0.5	8.5	8	Est'd; never turned in
4	Salone	22	0	0	11.5	10.5	Tally Errors
4	Salone	22	0	0	11.5	10.5	Tally Errors
Student T.		180.25	12.5	4	82.5	81.25	
percentage			6.93%	2.22%	45.77%	45.08%	

*** Special Note: many students qualify for bus ridership that live within the one mile zone of campus because of the hazard zones of Middle Road and California. Other students qualify because they are being delivered not to their home address but to after school programs, daycare or relative's care beyond the one mile zone.*

*** Special Note: actual drop-off observations counts 118 family vehicles dropping off about 122 students placing family vehicle usage closer to 60percent than the 45percent reported on Tally Sheets. The 45percent reported on Tally Sheets is adjusted down to 41percent when absentee students are factored into percentages.*

Strategies and Tasks

Strategies and tasks are classified in one of the "5 E's" - engineering, education, encouragement, enforcement or evaluation.

Engineering

- Prioritize improvements within the half-mile zone of the schools, then the three-quarter mile zone and next the one-mile zone. Maximize the impact of funds by applying expenditure emphasis on paint and sign improvement followed by more expensive concrete construction improvements.
- Modify older sidewalk areas to improve connectivity, quality, accessibility and width, along with street lighting improvements. For the future, careful planning of landscaping maintenance curb ramp design, truncated domes, driveway design and new street lighting will prevent additional problems.
- Improve on-street bicycle facilities with paths, street lanes and bike racks.
- Improve intersection crosswalk areas with marked crosswalks and reduce crossing distances; provide warning signs or flashers, curb extensions, crossing islands, waiting areas and stand-back lines.
- Improve safety by slowing traffic down in school areas using:
    - Narrow lanes
    - Speed bumps
    - Raised pedestrian crosswalks
    - Reduced corner radii

Education

- Teach pedestrian safety skills to students, families, and other community members.
- Teach bicyclist safety skills to students, families, and other community members.
- Use the Socorro High School drivers' education program as an opportunity to instruct new drivers about known behavior of bicyclists and pedestrians, thereby improving driver safety for all.
- Provide safe routes to school maps for all students, families, and school staff.
- Provide information for all on the health and environmental benefits of the SRTS program.

Encouragement

- Develop on-going encouragement events such as the following:
    - Walk, Wheel or Bus Tuesday and Thursdays
    - Walking, bicycling, car pooling and bus mileage clubs, such as the 'Golden Sneaker"
    - Walking and bicycle trains with off-campus drop-off and pick-up sites
    - Establishment of Park and Walk locations.
- Consider school contests to come up with new encouragement events.

Enforcement

- Use the 3-Step Progressive Ticketing Program
- Develop specific enforcement programs:
    - Crossing guards training
    - Campaign to reduce speeds around schools
    - Neighborhood involvement

Evaluation

- Develop the following attributes for each school's evaluation program:
    - Information gathering system
    - Track changes and determine what is working
    - Establish and encourage SRTS in school leaders and in team participation

Specific Activities, Objectives and Outcomes for CVCS

Activity: Initiate Walking, Bicycling, Car Pooling and Bus Ridership
Objectives: Distribute fliers to students/parents announcing the Walk, Wheel, Car Pool or Bus Tuesday and Thursdays. Encourage participation by establishing "Mileage Clubs," such as the "Golden Sneaker" example. Start within the first two months.
Outcomes: Increase the number of students walking from 10 percent to 15 percent; increase the number of students biking from 12 percent to 15 percent; increase the number of students car pooling or bus riding from 16 percent to 30 percent.

Activity: Promote Safe Routes to School
Objectives: Present information on the SRTS program at parent meeting, and place an article in the weekly school newsletter during the first two months. Invite parents to the meeting with prior flyer distribution. Organize parent volunteer membership and activity participation.
Outcome: Increase parental support of SRTS by 15% by the end of the school year as measured by changes to the parental support question in the parent survey.

Activity: Conduct Pedestrian and Bicycle Safety Education
Objective: Deliver safety presentations to all 4th and 5th grade classes within one year.
Outcome: Seventy-five percent of 4th and 5th graders pass a walking and bicycle safety knowledge test within one year.

Activity: Promote Bicycle Helmet Use
Objective: Custom-fit 25 helmets for bicyclists during the fall semester.
Outcome: Increase students wearing bicycle helmets to 60% by end of first school year.

Activity: Install Sidewalks
Objective: Get sidewalk improvements listed on city plan during the first year.
Outcomes: Complete all sidewalk gaps within half mile of campus within a three year period.

Activity: Improve Walker and Bicyclist Safety near Campus
Objectives: Reduce walkers and bicyclists mixing with busing students; current conditions with one main entrance at the bus waiting area overloads the busing area with students. Provide a new campus entrance for walkers and bicyclists at the Neel and Western crosswalk with sidewalks leading onto campus and bike racks.
Outcome: Walkers and bicyclists have their own entrance exclusive from busing area entrance within one year period.

Activity: Encourage Speed Reduction
Objective: Hold one news conference and deliver informational fliers to all school parents within two months of start of the activity.
Outcome: Reduce speeds in school zone from 35 mph to 15 mph during the first year of the SRTS program.

Activity: Engineer Changes for Speed Reduction in the School Zone
Objectives: Implement recommended engineering changes on Neel Street, Western and West Place for improving school-zone visibility and vehicle speed reduction.
Outcome: Reduce speeds in school zone from 25-35 mph to 15-20 mph during the first year of the SRTS program

Activity: Develop a Neighborhood Map
Objective: Develop a neighborhood map with boundaries (attendant, walking, two- mile radius); street names with crosswalks marked; sidewalks and formal and informal paths; on-street bicycle facilities such as bicycle lanes and paved shoulders; and traffic calming features.
Outcome: Complete neighborhood map within a six-month period.

Activity: Install Drop-off and Pick-up Design Changes
Objectives: Implement engineering changes with sidewalks, student waiting area pad and fencing in drop-off and pick-up area.
Outcomes: Have complete drop-off and pick-up area modifications within a one- year period.

Activity: Encourage Parent Compliance with Drop-off and Pick-up Area Rules
Objectives: Reduce campus congestion through parent education and enforcement of drop-off and pick-up area rules; present drop-off and pick-up information at parent meeting and place article in school newsletter during first two months; provide principal and staff with on-site enforcement and education in the first month of school year.
Outcome: Increase compliance from 78 percent to 90 percent in the first year.

Specific Activities, Objectives and Outcomes for ZES

Activity: Initiate Walking, Bicycling, Car Pooling and Bus Ridership
Objectives: Distribute fliers to students/parents announcing the Walk, Wheel, Car Pool or Bus Tuesday and Thursdays. Encourage participation by establishing 'Mileage Clubs,' such as, the 'Golden Sneaker" example. Start within the first two months.
Outcomes: Increase the number of students walking from 7 percent to 15 percent; increase the number of students biking from 2 percent to 15 percent; maintain car pooling or bus ridership at 45 percent.

Activity: Promote Safe Routes to School
Objectives: Present information on the SRTS program at parent meeting, and place an article in the school newsletter during the first two months. Invite parents to the meeting with prior flyer distribution. Organize parent volunteer membership and activity participation.
Outcome: Increase parental support of SRTS by 30% by the end of the school year as measured by changes to the parental support question in the parent survey.

Activity: Conduct Pedestrian and Bicycle Safety Education
Objective: Deliver safety presentations to all 4th and 5th grade classes within one year.
Outcome: Seventy-five percent of 4th and 5th graders pass a walking and bicycle safety knowledge test within one year.

Activity: Promote Bicycle Helmet Use
Objective: Custom-fit 35 helmets for bicyclists during the fall semester.
Outcome: Increase students wearing bicycle helmets to 60% by end of first school year.

Activity: Develop a Neighborhood Map
Objective: Develop a neighborhood map with boundaries (attendant, walking, two- mile radius); street names with crosswalks marked; sidewalks and formal and informal paths; on-street bicycle facilities such as bicycle lanes and paved shoulders; and traffic calming features.
Outcome: Complete neighborhood map within a six-month period.

Activity: Install Sidewalks
Objective: Get sidewalk improvements listed on city plan during the first year.
Outcomes: Complete all sidewalk gaps within half mile of campus within a three year period.

Activity: Improve Walker and Bicyclist Safety at School Of Mines Road Entrance
Objectives: Eliminate walkers and bicyclists mixing with bus traffic and parking areas; implement the School of Mines Road entrance engineering changes.
Outcome: Walkers and bicyclists have entrance on south side of busing lane with fence and campus access without crossing the busing lane within a one-year period.

Activity: Improve Walker and Bicyclist Safety with New South Entrance
Objectives: Open up a new safe route for walkers and bicyclists from southern end of campus;

install engineering changes and build pathways from San Miguel Catholic Church property into campus.
Outcome: Provide walkers and bicyclists with new southern campus entrance within a two-year period.

Activity: Install Drop-off and Pick-up Design Changes
Objectives: Implement engineering change modifications to drop-off/pick-up area and the parking lot area; implement parking space changes, painted lane changes, student waiting area changes, and crosswalk markings. These modifications provide organization and separation for parking lot traffic, drop-off and pick-up traffic and pedestrian traffic.
Outcome: Complete modifications within a one-year period.

Activity: Encourage Parent Compliance of Drop-off and Pick-up Area Rules
Objectives: Reduce campus congestion and enforce speed-limit compliance with parent education and enforcement of drop-off and pick-up area rules; present drop-off and pick-up information at parent meeting and place article in school newsletter during first two months; have principal and staff on-site enforcement and education in the first month of the school year.
Outcome: Increase compliance from 80 percent to 90 percent in the first year.

Activity: Eliminate Middle Road Hazard
Objectives: Implement "Waterway Trail Park" design with "Culvert Bridge" crosswalk at the Middle Road entrance, or implement another engineering change that eliminates the hazards of Middle Road.
Outcome: Provide walkers and bicyclists with a new eastern entrance with direct playground access within a three-year period.

Engineering Plan

Overview

Engineering strategies can improve student safety to enable more bicycling and walking. Engineering is a broad concept used to describe the design, implementation, operation and maintenance of traffic control devices or physical measures, including low-cost as well as high-cost capital measures. The following plan focuses on tools that work to create safe routes by improving paths, creating safer crossings and slowing traffic. The physical environment often determines whether many children walk or bicycle to school. To safely walk or bicycle to school along a street or separate path, or to cross a street along the way, children need well-designed, well-built and well-maintained facilities. Easy-to-implement and low-cost solutions are our first focus, although longer-term improvement needs are also identified. Effective improvements do not always require substantial funds. For example, signs and paint are relatively inexpensive and can make a big difference.

Cottonwood Valley Charter School's Engineering Needs:

- Improve visibility and regulation of the school zone, particularly Neel Street and Western.
- Provide and maintain bicycle and pedestrian facilities along the school route, including sidewalks, on-street bicycle facilities and paths.
- Provide safe-street crossings for bicyclists and pedestrians.
- Slow down traffic on Neel Street.

Zimmerly Elementary School's Engineering Needs:

- Improve Middle Road by eliminating the issues classifying this zone as a hazard.
- Provide and maintain bicycle and pedestrian facilities along the school route, including sidewalks, on-street bicycle facilities and paths.
- Provide safe street crossings for bicyclists and pedestrians.
- Improve the parking lot and student drop-off/pick-up area to provide separation from vehicles for students.
- Provide additional safe campus entry points for walkers and bicyclists in the south and east neighborhoods.

Priorities. Starting Socorro's engineering improvements within one-half mile of our school campuses is an excellent way to maximize resources to benefit the largest population of the walkers and bicyclists in our community. Socorro sidewalks and roadways commonly require the following improvements:

- Bushes are overgrowing sidewalks in many areas.
- Tree-root damage has pushed the sidewalk up and broken the pavement into small pieces that present not only difficulty in walking but are also increase the likelihood of falls. The sidewalk is angled greater than the 2 percent, which is against the Americans with Disabilities Act requirements, and the lifted section presents a tripping condition.
- Some of our streets have no paved sidewalks for students to use.
- Many sidewalks, especially those built in the 1930's, are too narrow.

- Some sidewalks stop and start without continuity. Some end abruptly, forcing children to walk in the street, and visibility is obscured at many corners by bushes or fences.
- In some areas, motor vehicles are parked on sidewalks. Not only does this practice cause pedestrians to walk in the street, but it also damages the sidewalk.
- In some areas, share-the-road lanes are damaged with cracks, rough pavement surfaces and debris in lanes.
- Our school zones are marked with some signage but are limited in alerting motor vehicle traffic. Some crosswalks have faded markings on the asphalt, resulting in cars actually stopping in the crosswalk itself. Moving the stop sign and stop line further away from the crosswalk also can be beneficial for pedestrian safety. Additional signage, lane-width restrictions and adding paint markings can dramatically improve school zone awareness.
- Curb ramps need to be added or improved to meet the Americans with Disabilities Act requirements.
- Numerous sidewalks have utility poles and traffic signs in the walkway.
- Many of our larger and high-traffic intersections, such as Neel/Grant/Fisher/Blue Canyon, Franklin/College and Neel/Nelson/Western require school children to walk 6 to 12 feet into the travel lane while in the crosswalk, before they can see or be seen by approaching traffic.

CVCS Area Engineering Change Plan

Key intersections and street segments have been identified with specific engineering change recommendations for improving the school's zone and neighborhood safety. See Recommended Engineering Techniques for Improving Socorro (in the Appendix) for more specific descriptions.

Street Segment: Neel Street between Western and West Place

This segment requires traffic calming, school-zone visibility improvement measures and improved sidewalks.

- Install continuous 6- to 8-foot-width sidewalks around campus starting a Western, along Neel and continuing to student drop-off/pick-up area at West Place.
- Eliminate street parking in this segment.
- Narrow the traffic lane from 11.5 feet to 10 feet.
- Install bicycle lanes only, with no parking on street segment, and include a wide painted buffer line separating the bicycle lane from the traffic lane.
- Install school zone signs: BUS STOP, BIKE LANE, NO PARKING BIKE LANE; In-street signs, CROSSWALK AHEAD and SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK.
- Paint traffic lanes SCHOOL ZONE markings.

Estimated costs: Widen campus-side Neel sidewalks 500 feet $9,500; narrow traffic lines and bicycle lane lines $1,500; SCHOOL ZONE paint in traffic lanes $600; signs $2,750. Estimated segment costs: $14,350.

Intersection: Neel/Nelson/Western

The intersection is a four-way stop where the Nelson/Western streets connects to Neel and are offset from each other by about 10-20 feet. The skewing of the corner interferes with the crosswalk's safety.

- Build curb extensions to narrow and reduce the corner skewing of the intersection, including two corners. The bicycle lane can pass through the curb extensions.
- Paint wide ladder-style crosswalk markings.
- Install signs: NO PARKING TO CORNER, CROSSWALK AHEAD, SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK, BIKE LANE and NO PARKING BIKE LANE.
- Paint 18-24-inch white vehicle stop lines 6-8 feet from crosswalk.
- Evaluate sidewalk obstructions for removal (utility poles, signs or shrubs).
- Create a no-parking zone within 50 feet of crosswalks, allowing only bicycle lanes. Designate with paint and signage.
- Install flashing yellow light school-zone signs about 200 feet prior to the intersection for southeast traffic traveling on Neel and southwest traffic on Nelson.
- Install a campus entrance for walkers and bicyclists with 12 x 10 foot waiting pad and a stand-back line.
- Install a campus entrance sidewalk into the campus.

Estimated costs: Two curb extensions $20,000; four ladder crosswalks $1,200; four stop lines $240; no parking lane/bicycle only lane $800; yellow flashing light $5,000; signs $5,000;

campus entrance waiting pad $2,700; stand-back line $60; campus entrance sidewalk 200 feet $3,800. Estimated segment costs: $38,800.

Street Segment: Western Avenue segment adjacent to campus

This segment needs engineering changes for slowing down traffic and making vehicles more aware of the school zone.

- Paint wide ladder-style crosswalk markings at midblock from the campus to the alleyway that parallels Neel Street.
- Install signs: CROSSWALK AHEAD and SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK.
- Paint 18-24-inch white vehicle stop lines 6-8 feet from crosswalk.
- Evaluate sidewalk obstructions for removal (utility poles, signs or shrubs).
- Build a speed hump on Western Street 30 feet prior to the Western Street's curve as traffic approaches the school campus.

Estimated costs: Western sidewalks 230 feet $4,370; ladder crosswalks $300; two stop lines $120; signs $750; speed hump$1,000. Estimated segment costs: $6,540.

Intersection: Neel/West Place; Engineering Changes

The intersection is in need of engineering changes for slowing down traffic. The drainage dip is a serious line-of-sight hazard for vehicle and pedestrian traffic. Many vehicles fail to slow for the school zone or for the pedestrians from multiple medical offices; the drivers are often busy enjoying the thrill of extra speed through the drainage dip in the road. Install flashing light crosswalks on the northwest side of the drainage dip that can be initiated by any pedestrian pressing a crossing-light button.

- Turn this intersection into a three-way stop.
- Paint wide ladder-style crosswalk markings.
- Build a raised pedestrian crosswalk on Neel Street on northwest side of the drainage dip for increased pedestrian visibility.
- Install flashing lights at the crosswalk with a pedestrian-triggered button for indicating pedestrians in the crossing.

- Install signs: NO PARKING TO CORNER, CROSSWALK AHEAD, SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK, BIKE LANE and NO PARKING BIKE LANE.
- Paint 18-24-inch white vehicle stop lines 6-8 feet from crosswalk.
- Evaluate sidewalk obstructions for removal (utility poles, signs or shrubs).
- Create a no-parking zone within 50 feet of the crosswalks, only allowing only bicycle lanes. Designate with paint and signage.
- Install a midblock raised crosswalk on Neel Street just north of the arroyo drainage ditch connecting Cottonwood's teacher parking lot with the doctors' offices.
- Install overhead flashing lights with a pedestrian-triggered button to indicate pedestrians are crossing on Neel Street, connecting Cottonwood's teacher parking lot with the doctors' offices.
- Install flashing yellow light school-zone sign about 200 feet prior to the intersection for northwest traffic traveling on Neel.

Estimated costs: West Place sidewalks 600 feet $11,400; three ladder crosswalks $900; five stop lines $300; raised table crosswalk $10,000; no parking lane/bicycle only lane $800; flashing lights $15,000; signs $4,000. Estimated segment costs: $42,400.

Intersection: West Place and drop-off/pick-up area between West Place City Park and campus

CVCS changed their campus drop-off/pick-up area in the summer of 2010. The new location and design separates vehicle traffic from bus, bicycle and walking traffic. The longer distance and less convenient location for drop-off/pick-up encourages walking, bicycle riding and busing over parents using family vehicles. Further benefits are that drop-off/pick-up students walk about one quarter block to campus, and the park provides a safe supervised after-school play area while students wait for a ride.

- Remove the no-left-turn sign at the drop-off/pick-up turn-around. An estimated 75 percent of the traffic will choose to return to Neel Street with a left turn. Currently the right turn to Reservoir Street is overloading this neighborhood's narrow streets with the additional traffic when children are walking or bicycling to school or home.
- Build a drop-off/pick-up waiting pad (12 feet by 10 feet) on the turn-around near the park entrance.
- Build continuous sidewalks around the turn-round area arc and to the campus entrance. The recommended width of the sidewalk is 8 feet.
- Install a 4-foot-high chain-link fence starting at the beginning of the drop-off/pick-up arc West Place sidewalk, where vehicles enter and extend to the waiting pad. The fence provides a buffer between the vehicles and the sidewalk while encouraging orderly drop-off and pick-up in designated locations.
- Install a PULL FORWARD sign at the beginning of the drop-off and pick-up entrance.
- Install a DROP-OFF AND PICK-UP sign at the student waiting pad.
- Starting at Blue Canyon on the west side of West Place Park, a graveled alleyway road ends at the drop-off/pick-up area turn-around. This road can be cleaned up, graded and graveled to offer a safe entry point for CVCS bicyclists and walkers, reducing walkers

and bicyclists having to use the narrow West Place Street entry.

Estimated costs: West Place Park sidewalks 175 feet $3,325; West Place drop-off and pick-up waiting area pad $2,700; stand-back lines $60; chain link fence 175 feet $1,000; West Place alley road grading and gravel $3,500; signs $750. Estimated segment costs: $11,335.

Intersection: Neel/Grant and Fisher/Blue Canyon

This intersection is critical for balancing traffic flow with pedestrian and bicycle safety. The intersection is currently a four-way stop that needs engineering improvements to provide safer crosswalks for walkers and bicyclists while maintaining vehicle flow. Currently the intersection street, Neel/Grant, is elongated with large radius corners allowing right turns at high speeds. This design allows drivers to make rapid right turns after making rolling stops from Grant onto Fisher and Fisher onto Neel. The elongated distance of the intersection of Grant/Neel Street requires drivers to focus extra attention on the vehicles at the intersection away from pedestrians or bicycles. The crossing distance for pedestrians or bicyclists is nearly equivalent to crossing four lanes.

- Square the corner of Grant/Fisher with a curb extension/island. The bicycle lane can pass through the curb extension. This will shorten the Grant Street pedestrian-crossing distance from Fisher to Blue Canyon while making pedestrians more visible to traffic. The Grant Street stop sign and stop line can be advanced about 15 feet into the intersection, shortening the elongation of the intersection.
- Square the corner of Fisher/Neel with a curb extension/island. The bicycle lane can pass through the curb extension. This will eliminate the curved right turn lane and can provide a quality bicycle lane. The current island can be extended into the new bicycle lane, providing a larger pedestrian crosswalk waiting platform and shorten the pedestrian crossing distance for both the Fisher and Neel crosswalks. It will also improve pedestrian visibility.
- Eliminate the left turn lane from Neel to Fisher. Move the traffic lane stop line to the mid-point of the current two lanes. Establish a continuous bicycle lane. Returning to one lane with a bicycle lane will open up the turning radius for larger vehicles making a right turn from Fisher onto Neel, while providing safe bicycling and walking. Traffic coming from Neel to Fisher or Grant is steady, but it is not substantial enough to require a left

turn lane.

- Reverse the one-way traffic flow of Blue Canyon. With the narrow streets limiting traffic flow in this neighborhood, there is a greater need for exit points than for entry points into the neighborhood.
- Create a no-parking zone within 50 feet of crosswalks, allowing only bicycle lanes. Designate with paint and signage.
- Paint four ladder-style crosswalk markings.
- Paint 18-24-inch white vehicle stop lines 6-8 feet from crosswalk.
- Install signs: NO PARKING TO CORNER, CROSSWALK AHEAD, SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK, BIKE LANE and NO PARKING BIKE LANE.

Estimated costs: Neel sidewalks 75 feet $1,425, Fisher sidewalks 600 feet $11,400, Grant sidewalks 200 feet $3,800; Blue Canyon sidewalks 800 feet $15,200; two large curb extensions $25,000; four ladder crosswalks $1,200; four stop lines $240; no parking lane/bicycle only lane $800; lane painting $1,200; signs $5,000. Estimated segment costs: $65,265.

Intersection: Grant and Garfield/Reservoir

This intersection has stop signs at Garfield and Reservoir with the Grant traffic not stopping. Traffic speeds can exceed 40 mph, making this a very difficult intersection for a pedestrian to cross.

- Paint wide ladder-style crosswalks.
- Install overhead flashing lights with a pedestrian-triggered button to indicate pedestrians are crossing Grant Street, which connects Garfield to Reservoir on the north side of the intersection.
- Install YIELD TO PEDESTRIAN signs on reservoir and Garfield. Install an in-street sign: STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK and CROSSWALK AHEAD.
- Paint 18-24-inch white vehicle stop lines 6-8 feet from crosswalk.
- Evaluate sidewalk obstructions for removal (utility poles, signs or shrubs).

Estimated costs: Reservoir sidewalks 400 feet $7,600, Garfield sidewalks 400 feet $7,600; three ladder crosswalks $900; four stop lines $240; overhead flashing lights $10,000; signs $3,000. Estimated segment costs: $29,340.

Intersection: Neel and Mount Carmel

This intersection has a stop sign at Mount Carmel with the Neel traffic not stopping. Traffic speeds can exceed 40 MPH, making this a very difficult intersection for a pedestrian to cross. The blind curve on Neel and the crossing distance adds to the hazard for pedestrians crossing.

- Paint wide ladder-style crosswalks at Neel/Mount Carmel and Mount Carmel/Terry intersections.
- Install overhead flashing lights with a pedestrian-triggered button to indicate pedestrians are crossing Neel Street/Mount Carmel.
- Paint 18-24-inch white vehicle stop lines 6-8 feet from crosswalk.
- Evaluate sidewalk obstructions for removal (utility poles, signs or shrubs).

- Square the SE and NW corner of Neel and Mount Carmel with curb extensions to slow the Neel right turn traffic and shorten the Neel crosswalk. This provides improved visibility of bicycle and pedestrian traffic coming out of Mount Carmel.
- Install YIELD TO PEDESTRIAN signs on Mount Carmel and Terry crosswalk. Install in-street sign: STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK and CROSSWALK AHEAD on Neel and Mount Carmel crosswalk.

Estimated costs: Mount Carmel sidewalks 350 feet $6,650, Terry sidewalks 400 feet $7,600; curb extensions $20,000; two ladder crosswalks $600; four stop lines $240; overhead flashing lights $10,000; signs $1,750. Estimated segment costs: $46,840.

Intersection: Leroy and Bullock

This is a four-way stop intersection with no crosswalks.

- Paint four wide ladder-style crosswalks.
- Install signs: NO PARKING TO CORNER, CROSSWALK AHEAD, SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK, BIKE LANE and NO PARKING BIKE LANE.
- Paint 18-24-inch white vehicle stop lines 6-8 feet from crosswalk.
- Evaluate sidewalk obstructions for removal (utility poles, signs or shrubs).
- Create a no-parking zone within 50 feet of crosswalks, allowing only bicycle lanes. Designate with paint and signage.

Estimated costs: four ladder crosswalks $1,200; four stop lines $240; no parking lane/bicycle only lane $800; signs $4,000. Estimated segment costs: $6,240.

Zimmerly Area's Engineering Change Plan

Key intersections and street segments have been identified with specific engineering change recommendations for improving the school's zone and neighborhood safety. See Recommended Engineering Techniques for Improving Socorro (in the Appendix) for more specific descriptions.

Intersection: College and Franklin/El Camino Real

This is a four-way stop intersection that is slightly skewed where Franklin and El Camino are not in a straight line. With no crosswalks, the skewing of the intersection requires drivers to focus extra attention on the vehicles at the intersection, thereby lowering the safety of pedestrians and bicyclists.

- Paint four ladder-style crosswalk markings.
- Paint 18-24-inch white vehicle stop lines 6-8 feet from crosswalk.
- Install overhead flashing lights with a pedestrian triggered button for indicating pedestrians crossing.
- Create a no-parking zone within 50 feet of the crosswalks, allowing only bicycle lanes. Designate with paint and signage.
- Install signs: NO PARKING TO CORNER, CROSSWALK AHEAD, SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK, BIKE LANE and NO PARKING BIKE LANE.

Estimated costs: College sidewalks 800 feet $15,200; two curb extensions $20,000; four ladder crosswalks $1,200; four stop lines $240; overhead flashing lights $10,000; no parking lane/bicycle only lane $800; signs $4,000. Estimated segment costs: $51,440.

Intersection: School of Mines and Franklin/Nelson

This is a four-way stop intersection that is highly skewed where Franklin and Nelson are not in a straight line. With no crosswalks, the skewing of the intersection requires drivers to focus extra attention on the vehicles at the intersection, thereby lowering the safety of pedestrians and bicyclists. Reducing the intersection skew while shorting the crosswalk distances will improve the pedestrian and bicycle safety for this intersection. Reducing the intersection skewing will also improve the vehicle driver's visibility of pedestrians and other vehicle traffic.

- Paint four ladder-style crosswalk markings.
- Paint 18-24-inch white vehicle stop lines 6-8 feet from crosswalk.
- Create a no-parking zone within 50 feet of crosswalks, allowing only bicycle lanes. Designate with paint and signage.
- Install signs: NO PARKING TO CORNER, CROSSWALK AHEAD, SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK, BIKE LANE and NO PARKING BIKE LANE.
- Remove right turn lanes on both Franklin and Nelson, and widen the bicycle lanes.

Estimated costs: Nelson sidewalks 600 feet $11,400; four ladder crosswalks $1,200; four stop lines $240; no parking lane/bicycle only lane $1,500; signs $4,000. Estimated segment costs: $18,340.

Intersection: College and Annette

This intersection has a stop sign at Annette with two wide lanes of traffic at speeds ranging from 30 to 50 mph. A crosswalk at this point provides a safe crossing into the neighborhood connecting pedestrians and bicyclists from to ZES and CVCS through to Sedillo Park.

- Paint wide ladder-style crosswalk.
- Install a pedestrian-triggered button connecting to flashing lights, indicating that pedestrians are crossing College Street.
- Install signs: NO PARKING TO CORNER, CROSSWALK AHEAD, SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK, BIKE LANE and NO PARKING BIKE LANE.
- Paint 18-24-inch white vehicle stop lines 6-8 feet from crosswalk.
- Install a chocker curb extension on both sides of College for pedestrian and bicycle waiting areas to reduce the distance for the pedestrians' crossing and to focus driver attention to the crosswalk. Bicycle lanes can continue through the curb extension.
- Create a no-parking zone within 50 feet of crosswalks, allowing only bicycle lanes. Designate with paint and signage.

Estimated costs: College sidewalks 600 feet $11,400; two chocker curb extensions $20,000; one ladder crosswalks $300; two stop lines $120; flashing crossing lights $5,000; no parking lane/bicycle only lane $800; signs $4,000. Estimated segment costs: $41,620.

Intersection: El Camino Real and Bullock

This intersection is a four-way stop with no crosswalks.

- Paint four wide ladder-style crosswalks.
- Install signs: NO PARKING TO CORNER, CROSSWALK AHEAD, SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK, BIKE LANE and NO PARKING BIKE LANE.
- Paint 18-24-inch white vehicle stop lines 6-8 feet from crosswalk.
- Evaluate sidewalk obstructions for removal (utility poles, signs or shrubs).
- Create a no-parking zone within 50 feet of crosswalks, allowing only bicycle lanes. Designate with paint and signage.

Estimated costs: Bullock sidewalks 800 feet $15,200; El Camino Real sidewalks 500 feet

$9,500; four ladder crosswalks $1,200; four stop lines $240; no parking lane/bicycle only lane $800; signs $4,000. Estimated segment costs: $30,940.

Zimmerly campus parking lot and drop-off/pick-up area;
Currently only one entrance is available for walking and bicycling students at School of Mines Road, which is also the entrance for buses. The Middle Road entrance is for family vehicles for student drop-off/pick-up and the school parking lot. Vehicles and students mix with family and bus traffic. Family vehicles exit through the parking area, with too many parents exceeding the 15 mph speed limit in the congested parking-lot area. Adding new student entrances to campus from the south parking lot area and the Middle Road areas will take engineering improvements. The School of Mines entrance can be improved by moving the walking and bicycle lane to the south side where students will not have to cross the busing lane. The drop-off and pick-up stop line can be moved about 40 to 50 feet towards the gym, providing crosswalk and pedestrian buffer areas from vehicle traffic. Two vehicle lanes and a bicycle lane can be added to the Middle Road entrance, which will provide lane separation for bicycles, parking traffic and drop-off/pick-up traffic. Walking and bicycle trail development is necessary for the new entrances to the south and east (Middle Road) for student safety.

- Paint wide ladder-style crosswalks within the parking lot area.
- Install signs: CROSSWALK AHEAD, SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK, DROP-OFF AND PICK-UP LANE, PARKING LANE, BIKE LANE and NO PARKING BIKE LANE.
- Install a 6-foot sidewalk with a chain-link fence on the south side of School of Mines Road at the bus entrance lane.
- Paint parking, drop-off/pick-up and bicycle lanes for Middle Road entrance.
- Move diagonal parking spaces to make room for extra entrance lanes and for narrowing the exit lane.
- Install an exit-lane speed hump to encourage lower vehicle speeds within the parking lot.
- Install a walk-and-bicycle trail from San Miguel Catholic Church to the south entrance.
- Install Middle Road "Waterway Park Trail" from College to Proto Road.
- Install a new pedestrian campus fence entrance at Middle Road, for use by walking students so that they can directly enter the playground.
- Install a Middle Road entrance ladder-style crosswalk with student wait pads.
- Install pedestrian-triggered flashing lights for indicating pedestrians crossing at Middle Road entrance.

Estimated costs: parking-lot ladder crosswalk $1,500; three stop lines and eighteen traffic arrows $1,200; School of Mines 6-foot sidewalk and fence $5,000; bicycle only lane/parking lane/drop-off/pick-up lane $1,500; diagonal parking spaces $2,000; exit lane speed hump$1,500; south entrance trial $15,000; "Waterway Park Trail" culvert crossing, crosswalk, waiting pads and fence entrance $8,000; flashing crossing lights $10,000; signs $4,000. Estimated segment costs: $49,700.

Intersection: Spring Street (Hwy 60) and Grant
This intersection has a stop sign at Grant with four lanes of traffic at speeds ranging from 40 to

55 mph. The current crosswalk is poorly marked, and walkers and bicyclists are ignored by traffic.

- Paint wide ladder-style crosswalk.
- Install pedestrian-triggered flashing lights for indicating pedestrians crossing at the entrance.
- Install signs: NO PARKING TO CORNER, CROSSWALK AHEAD, SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK, BIKE LANE and NO PARKING BIKE LANE.
- Paint 18-24-inch white vehicle stop lines 10-12 feet from crosswalk.
- Evaluate sidewalk obstructions for removal (utility poles, signs or shrubs).
- Create a no-parking zone within 50 feet of crosswalks, allowing only bicycle lanes. Designate with paint and signage.
- Install a chocker curb extension on both sides of Spring Street for pedestrian and bicycle waiting areas to reduce the distance for pedestrian crossing and to focus driver attention to the crosswalk. Bicycle lanes can continue through the curb extension.
- Install a center island for pedestrians and bicyclists. This will shorten the crossing distance and allow pedestrians to focus on crossing against two lanes of traffic at a time.
- Building curb extensions into parking lanes at the crosswalk will bring driver attention to pedestrians in the crosswalk and will effectively slow traffic.

Estimated costs: Spring Street sidewalks 300 feet $5,700; center lane island $10,000; two curb extensions $20,000; one ladder crosswalk $300; four stop lines $240; no parking lane/bicycle only lane $800; flashing crossing lights $10,000; signs $4,000. Estimated segment costs: $51,040.

Intersection: Spring Street (Hwy 60) and Park

This intersection has a stop sign at Park with four lanes of traffic at speeds ranging from 40 to 55 mph. The current crosswalk is poorly marked and walkers and bicycles ignored by traffic.

- Paint wide ladder style crosswalk.
- Install pedestrian-triggered flashing lights for indicating pedestrians crossing.
- Install signs: NO PARKING TO CORNER, CROSSWALK AHEAD, SCHOOL STATE LAW STOP FOR PEDESTRIANS WITHIN CROSSWALK, BIKE LANE and NO PARKING BIKE LANE.
- Paint 18-24-inch white vehicle stop lines 10-12 feet from crosswalk.
- Evaluate sidewalk obstructions for removal (utility poles, signs or shrubs).
- Create no-parking zone within 50 feet of crosswalks, only allowing bicycle lanes. Designate with paint and signage.
- Install a chocker curb extension on both sides of Spring Street for pedestrian and bicycle waiting areas to reduce the distance for the pedestrians crossing and to focus driver attention to the crosswalk. Bicycle lanes can continue through the curb extension.
- Install a center island for pedestrians and bicyclists. This will shorten the crossing distance and allow pedestrians to focus on crossing against two lanes of traffic at a time.
- Building curb extension into parking lanes at the crosswalk will bring driver attention to crosswalk pedestrians and will effectively slow traffic.

Estimated costs: center lane island $10,000; two curb extensions $20,000; one ladder crosswalk $300; four stop lines $240; no parking lane/bicycle only lane $800; flashing crossing lights $10,000; signs $4,000. Estimated segment costs: $45,340.

Intersection: California and Otero

This intersection has a traffic light with a crossing pedestrian button at signal. There are four lanes of traffic with an island in the middle. Traffic speeds range from 30 to 50 mph. The current crosswalk is poorly marked, and walkers and bicycles can be ignored easily by traffic.

- Paint wide ladder-style crosswalk.
- Install YIELD TO PEDESTRIAN signs.
- Paint 18-24-inch white vehicle stop lines 8 feet from crosswalk.

Estimated costs: one ladder crosswalk $300; four stop lines $240; signs $1,000. Estimated segment costs: $1,540.

Segment: Middle Road Segment from Franklin to Vigil Avenue

This road segment is designated a busing hazard area for our schools because of the narrowness of the road, the close proximity of the irrigation ditch and the lack of sidewalks. Students as close as one block from the school have the option of busing because of this hazard zone. Three changes have been identified that can improve walking and bicycling access to the ZES Campus without making dramatic street engineering changes to Middle Road. Increasing the walking and bicycling participation at ZES can substantially reduce the Middle Road vehicle traffic during morning and afternoon periods. Nearly 84 percent of the 7:45 to 8:15 a.m. and 2:30 to 3:00 p.m. traffic on Middle Road is ZES parents dropping off or picking up students. Most of these parents have only one student at ZES, and for each child who walks or bicycles to school, one vehicle is eliminated in both the morning and afternoon and periods, further increasing student safety.

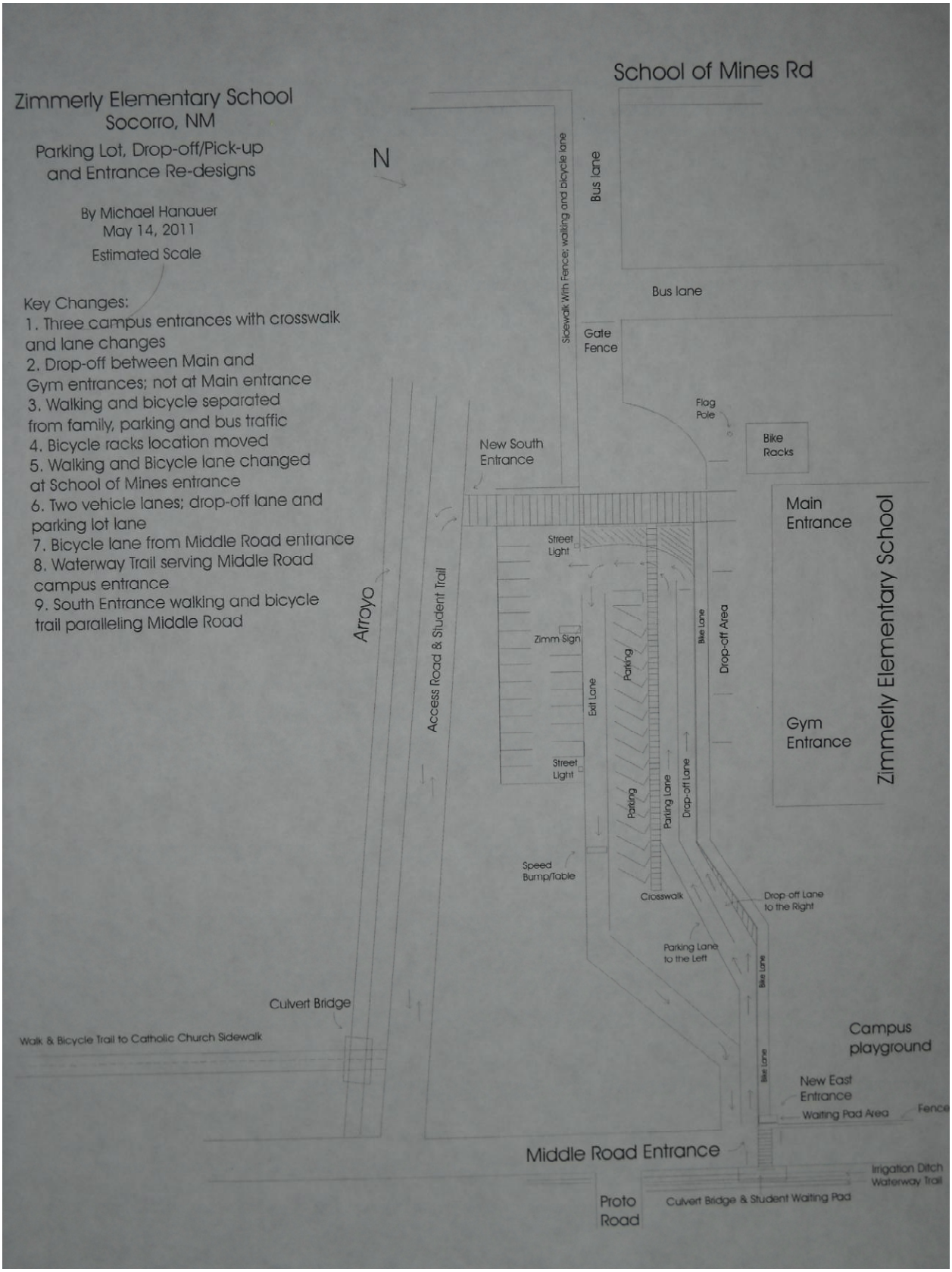
- Change One, affecting students coming from the north: Build a walking and bicycle trail starting at the Franklin and Middle Road intersection that parallels Middle road and extends to campus. A 10 to 12 foot trail can be built 6 to 10 feet away from Middle Road at the top edge of the grassy flood-retaining area. A curb barrier can be build to separate

the vehicle traffic from the walkers and bicyclists. A crosswalk can be installed at the bus exit with walkers entering the playground immediately. Bicyclists can continue on a trail inside of the campus fence parallel to the busing lane, continuing on to the bicycle rack area by the school's front door.

Estimated costs: Trail $10,000; one ladder crosswalk $300; one stop line $60; signs $500. Estimated segment costs: $10,860.

- Change Two, affecting students coming from the north: Develop part of the Socorro Waterway Trail Park, the section starting near College and Franklin and along Middle Road and just north of Proto. Develop the irrigation ditch access into a quality walking and bicycle trail with benches, trees and wildlife habitat. Just before the Middle Road and the Proto intersection, a wide culvert bridge can be added with a crosswalk and a student waiting pad. The crosswalk provides walking and bicycling students with immediate campus playground access by modifying the campus playground fence with an entrance. Bicycle racks can be placed in the corner of the playground for secure storage.
    - Develop "Waterway Trail Park" on the Middle Road segment.
    - Install irrigation-ditch culvert bridge and student waiting area pad.
    - Paint a wide ladder-style crosswalk.
    - Install pedestrian-triggered flashing lights for indicating pedestrians crossing Middle Road.
    - Install YIELD TO PEDESTRIAN signs.
    - Paint 18-24-inch white vehicle stop lines 4-8 feet from crosswalk.

Estimated costs: Waterway Trail Park $10,000; culvert bridge $5,000; flashing crossing light $5,000; one ladder crosswalk $300; two stop lines $120; campus fence entrance modifications $1,000; signs $1,000. Estimated segment costs: $22,420.


Zimmerly Elementary School
Socorro, NM
Parking Lot, Drop-off/Pick-up
and Entrance Re-designs
By Michael Hanauer
May 14, 2011
Estimated Scale
Key Changes:
1. Three campus entrances with crosswalk and lane changes
2. Drop-off between Main and Gym entrances; not at Main entrance
3. Walking and bicycle separated from family, parking and bus traffic
4. Bicycle racks location moved
5. Walking and Bicycle lane changed at School of Mines entrance
6. Two vehicle lanes; drop-off lane and parking lot lane
7. Bicycle lane from Middle Road entrance
8. Waterway Trail serving Middle Road campus entrance
9. South Entrance walking and bicycle trail paralleling Middle Road
N
School of Mines Rd
Bus Lane
Sidewalk With Fence; waiting and bicycle lane
Bus lane
Gate
Fence
Flag
Pole
Bike
Racks
New South
Entrance
Main
Entrance
Zimmerly Elementary School
Street
Light
Arroyo
Access Road & Student Trail
Zimm Sign
Exit Lane
Parking
Bike Lane
Drop-off Area
Gym
Entrance
Street
Light
Parking
Parking Lane
Drop-off Lane
Speed
Bump/Table
Crosswalk
Drop-off Lane
to the Right
Parking Lane
to the Left
Bike Lane
Culvert Bridge
Walk & Bicycle Trail to Catholic Church Sidewalk
Campus
playground
Bike Lane
New East
Entrance
Waiting Pad Area
Fence
Middle Road Entrance
Irrigation Ditch
Waterway Trail
Proto
Road
Culvert Bridge & Student Waiting Pad

- Change Three, affecting students coming for the south: Establish a new ZES walker and bicyclist campus entry point from the San Miguel Catholic Church property to campus. These engineering changes will provide safe access to ZES's walking and bicycling students coming from the southern and eastern town neighborhoods.
    1. Build a walking and bicycling trial starting at San Miguel's Middle Road sidewalk continuing parallel to Middle Road to the arroyo that runs from School of Mines to Middle Road. Build the trail with a buffer zone between Middle Road for an additional safety zone from vehicles. San Miguel's Rev. Andrew Pavlak has stated that the church will support safety improvements on Middle Road to increase safe access for ZES students.
    2. Build a wide culvert bridge for the trail crossing the arroyo. The trail extends westward on the arroyo access road towards School of Mines. The new campus entry point is at the back side of the current parking. A 12-foot walking and bicycle trail with curb barriers can be added on the west side of the parking lot, providing safe student separation from vehicles up to the school's front door.

    Estimated costs: Trail $12,000; culvert bridge $5,000; large on-campus ladder crosswalk $1,200; campus fence entrance modifications $1,000; signs $1,000. Estimated segment costs: $20,200.

"Waterway Trail Park": Using the Irrigation Ditch Trail

Socorro has the opportunity to create a connective trail system through and around our town using the historic irrigation ditch waterways. A "Waterway Trail Park" would beautify our town and provide walking and bicycling connectivity throughout town with limited vehicle traffic at intersection crosswalks. Separated multi-use trails (sometime known as shared-use paths) are passageways that are used to increase the connectivity of the pedestrian and bicycle network. Trails can connect neighborhoods directly with schools and shorten the distance children must walk or bicycle. However, trails must be designed properly, especially where they intersect roadways, to minimize the risk of pedestrian and bicyclist crashes. Guidelines for designing trails are available in the Federal Highway Administration's *Designing Sidewalks and Trails for Access, Part 2 Best Practices and Design Guide* at www.fhwa.dot.gov/environment/sidewalk2/sidewalks214.htm and in the American Association of State Highway and Transportation Officials' Guide for the Development of Bicycle Facilities.

Guidelines for the width of a multi-use trail can range from 8 to 14 feet or more. Under most conditions, the recommended minimum width for a two-direction trail designed for bicyclists and pedestrians is 10 feet. However, when heavy traffic is expected, a trail width of 12 to 14 feet is preferred. In some instances, a width of eight feet can be adequate, especially if the proportion of bicyclist or pedestrian travel is small and the overall number of users is not large. Pavement for multi-use trails can be asphalt or concrete. Measures should be taken to keep motor vehicles off the trail, yet allow maintenance vehicles to have access. This can be accomplished with removable posts (bollards) that lock into place. The space between posts should typically be about five feet wide to prevent motor vehicle access but to allow comfortable bicycle access.

Estimated cost. Construction costs can run $40,000 per mile. Socorro should be able to create a fine "Waterway Trail Park" from Middle Road near Zimmerly Elementary School to Sarracino Middle School near El Camino Real for about $75,000. Other sections around town can be added as Park and Recreation fund resources become available.

Total Estimated Engineering Plan Costs

An estimated cost by engineering technique is provided by walkinginfo.org, a pedestrian and bicycle information center. The estimated cost of each primary intersection and street segment itemized by engineering improvements provided in the above sections make up the sum total for Phase II engineering costs. Phase II total engineering costs are estimated at $679,550.

Education and Encouragement Plans

Education Plan

Education activities include teaching pedestrians and bicyclists about traffic safety and creating awareness of the benefits and goals of SRTS. While education dovetails with engineering and enforcement, it is most closely linked to encouragement strategies. For example, children may learn pedestrian and bicyclist safety skills and then get the chance to join a mileage club that rewards children for walking or bicycling to school. Encouragement activities also offer "teachable moments" to reinforce pedestrian and bicyclist safety education messages.

Both Cottonwood Valley Charter School and Zimmerly Elementary School have expressed their willingness to educate the students, families and staff members on the program and the many safety issues involved, as noted throughout this document. Please see the Appendix for additional information, where you will find a section on strategies and potential specific activities, as adapted from the National Center for Safe Routes to School.

Encouragement Plan

Encouragement strategies are about having fun; they generate excitement and interest in walking and bicycling. Special events, mileage clubs, contests and ongoing activities all provide ways for parents and children to discover, or rediscover, that walking and bicycling are doable and a lot of fun. Encouragement and education strategies are closely intertwined working together to promote walking and bicycling by rewarding participation and educating children and adults about safety and the benefits of bicycling and walking. Encouragement activities also play an important role in moving the overall SRTS program forward because they buoy support for changes that might require more time and resources, such as constructing a new sidewalk. Before beginning encouragement strategies, children should receive pedestrian and bicyclist safety education, as noted above.

Established Socorro Special Events

Socorro has already been using events for education and encouragement regarding walking and bicycling safety. For example, Socorro participates in the Annual National Walk and Roll to School Day, during the first week of October, coupled with the Socorro Fitness and Nutrition Committee's Passport Program to Health.

- The event is a one-day activity to celebrate walking and bicycling to school.
- Families walk or bicycle from home or from a group meeting area.
- Signs, balloons and banners are be used to create an air of excitement and celebration.
- When they arrive at the school, participants are greeted by the school principal or a school volunteer and receive snacks and small gifts like stickers and pencils.
- Schools give press interviews, and the newspaper provides event coverage.
- Other group activity rounds out the event, via the Socorro Fitness and Nutrition Committee sponsoring the Passport Program to Health. School fourth and fifth graders are released from class to participate in a walk to New Mexico Tech's athletic field for

the Walk and Roll Day Event. Prizes are awarded for prior Passport participation.
- Volunteers help plan the event, walk with children and give out items at the school.
- This event brings visibility to Safe Routes to School and helps to educate families about health, nutrition and the joy of walking and bicycling safely to school.

Other already-present Socorro activities will draw additional attention to the Safe Routes to School Program. In particular, professional bicycle training and demonstrations are taught by Wes Young (LCI), a certified League of American Bicyclists cycling instructor. Schools have the opportunity to invite Mr. Young to conduct safe bicycling workshops for students to learn the rules of the road and safe biking in live workshops on bicycles.

Again, please see the Appendix for additional information, where you will find a section on how to develop encouragement ideas, as adapted from the National Center for Safe Routes to School.

Enforcement

The main goal for Safe Routes to School (SRTS) enforcement strategies is to deter unsafe behaviors of drivers, pedestrians and bicyclists, and to encourage all road users to obey traffic laws and share the road safely. Enforcement is among the necessary complementary strategies SRTS programs use to enable more children to walk and bicycle to school safely. Each community must utilize a unique combination of enforcement, engineering, education and encouragement strategies to address the specific needs of their schools and to achieve long-term results.

When people think of "enforcement," what typically comes to mind is an officer writing a traffic ticket. However, with an SRTS program, enforcement is primarily is a network of community members working together to promote safe walking, bicycling and driving. Promoting and enforcing safety relies heavily on the use of ongoing awareness efforts, parent and student education and—only when necessary—the use of ticketing for dangerous behaviors. Enforcement includes students, parents, adult school crossing guards, school personnel and neighborhood watch programs, all working in conjunction with law enforcement. Working together to enforce safety rules results in increased awareness and a safer environment for all.

Driver Behaviors

Unsafe driver behaviors can occur both on the route to the school and on the school campus itself, particularly during drop-off and pick-up times.

Unsafe driver behaviors on the streets around the school include:

- Using excessive speed through residential streets and through school zones.
- Failing to yield to students walking or bicycling, especially in crosswalks.

Speed Matters

Some drivers don't think about the risks they create. A driver may not think going 10 mph over the speed limit will be noticeably less safe, but just a 10 mph difference in speed can be critical to whether a pedestrian lives or dies when struck by a motor vehicle. This is especially true for children. At 20 mph, a pedestrian has about a 5 percent chance of dying if he is hit by a motor vehicle. At 30 mph, the chance of dying increases to roughly 45 percent. If a pedestrian is hit by a motor vehicle traveling 40 mph, the risk of dying increases to 85 percent. Neel Street driver speeding is a frequent occurrence during the busy morning and afternoon student drop-off and pick-up times. Engineering enhancements will be necessary to discourage speeding and provide a safe school zone. Support from the city police department will also be an important factor for changing driver habits through this school zone.

Parents also can have a positive affect for school safety during the student drop-off or pick-up times. Observed unsafe parent/teacher driver behaviors on the school campus have included the following:

- Improper parking: Drivers have parked in the ZES parking-lot crosswalk, even though it is marked.

- Motor vehicles have stopped or parked in the CVCS bus zone during drop-off times.
- Family members have dropped off students directly in the street at CVCS, rather than in the appropriate location adjacent to the curb.
- Students have been dropped off in the teacher's parking lot, rather than in the CVCS designated student drop-off area.
- At ZES, students have been dropped off in the area adjacent to the actual drop-off zone, with family members then making a U-turn to exit right in front of other vehicles attempting to access the drop-off zone.
- At both schools, drivers have often allowed students to walk between parked motor vehicles—a very dangerous practice.

The new CVCS student drop-off and pick-up zone (established fall 2010) has helped provide a safer environment. Both teacher and administration support, monitoring and educating parents and students, has provided the extra reinforcement for creating and maintaining compliance of safe procedures. The beginning of each school year offers a new and excellent opportunity to educate and enforce drop-off and pick-up procedures.

Pedestrian and Bicyclist Behaviors

Another critical component of enforcement activities is making sure that children and other pedestrians and bicyclists know and follow the safety rules. Efforts should focus on students' behavior on the route to school in order to minimize the risks that student pedestrians and bicyclists may encounter.

Our crossing guards need support through training and appropriate supplies such as a bright hand-held stop sign and a high-visibility vest.

Law enforcement officers see first-hand the consequences of motor vehicle crashes. They also see first-hand the behaviors that cause these consequences. From conducting education and enforcement campaigns to identifying unsafe conditions, law enforcement officers can play multiple roles in Safe Routes to School programs.

With the many daily demands put upon every police department, it is important to understand that local law-enforcement resources are available only for limited participation. Law enforcement resources must be reserved for situations where students face harm or when unsafe behaviors persist despite the use of other methods. Police should provide an enforcement presence at appropriate times to discourage dangerous behaviors both on and off the school campus. This may mean issuing warnings to drivers breaking traffic laws. Drivers who have made a minor error will often respond to a warning from an officer by being more careful. Drivers who continue to violate traffic laws need to be ticketed. Crossing guards should be trained to assist police follow-through by recording any dangerous or potentially dangerous driver behaviors, including the license plate number of the vehicle.

Community Enforcement Approach

Representatives of communities and schools can improve safety behaviors in many ways.

- Older students can become safety-patrol members and help during drop-off and pick-up times at the schools. Student safety patrols enhance enforcement of drop-off and pick-up procedures at school by increasing safety for students and improving traffic flow efficiency for parents. Such efforts allow student participants to learn skills they can use in their everyday lives.
- Adults can volunteer to become crossing guards to enforce safe behaviors at crossings. Adult school crossing guards can play a key role in promoting safe driver and pedestrian behaviors at crosswalks near schools. They help children develop the skills to cross streets safely, and they remind drivers of the presence of pedestrians. School crossing guards can be parent volunteers, school staff or other paid personnel. Annual classroom and field training for adult school crossing guards, along with uniforms and/or equipment to increase visibility are highly recommended. The presence of guards can lead to more parents feeling comfortable about their child walking or bicycling to school.
- Neighborhood speed-watch programs can provide opportunities for residents to educate drivers about their driving speeds while making drivers aware that the neighborhood is concerned about safety. Such programs encourage citizens to take an active role in changing driver behavior in their own neighborhoods; neighborhood programs raise public awareness still and educate drivers about the negative impact (i.e., the dangers) of speeding. In these programs, residents record speed data in their neighborhood using radar units borrowed from a city or county law-enforcement agency. Residents record the speed and license plate information of speeding motor vehicles. This information is sent in a letter to the vehicle owner informing them of the observed violation and encouraging them or other drivers of their vehicle to drive at or below the posted speed limit. This type of awareness encourages some speeding drivers to slow down. Drivers also learn that residents will not tolerate speeding in their neighborhoods.

The majority of the traffic around CVCS is made up of neighborhood resident traffic exceeding 80 percent. In contrast, traffic on Middle Road effecting ZES is nearly 85 percent school-related traffic. An effective program will seek to notify all groups that a strong traffic-law enforcement program is in place.

Awareness and Education Come First

Public awareness and education need to occur *before* enforcement activities. The awareness and

education messages should inform people of the safety issues involved and why enforcement action is necessary. Promoting public support through publicity and education will help to offset any complaints from those who are caught breaking the law. The public needs to be told in advance what the enforcement activities will be and when they will start. Methods for raising awareness should include sending flyers home with students, mailing materials to residents living within a specified distance of the school and using local media (television, radio and newspapers) to spread the message. Portable speed-reader boards with speed-limit signs are effective tools for providing real-time speed information to drivers initially. For some drivers, raising that awareness may be enough to cause them to alter their unsafe actions.

Active Speed Monitors

Similar to portable speed-reader boards, active speed monitors are permanent devices that continue the process of keeping drivers aware of their speed in crossing areas. Over time, drivers will routinely check their speed and become accustomed to slowing down near schools. Active speed monitors are typically mounted on a speed-limit sign and visually display drivers' real-time speeds as they pass. Some active speed monitors are solar-powered.

Progressive Ticketing

As the strongest strategy of an enforcement program, progressive ticketing uses a three-stage process. This process is usually reserved for changing unsafe behaviors that other strategies have failed to change or that pose a real threat to the safety of students and other pedestrians and bicycle riders.

Step 1: Education

Establish community awareness of the problem. The public needs to understand that drivers are speeding around schools and the consequences of this speeding for student safety. Raising awareness about the problem will change some behaviors and create public support for the enforcement efforts to follow.

Step 2: Warning

Announce what action will be taken and why. Give the public time to change behaviors before ticketing starts. Fliers, signs, newspaper stories and official warnings from officers can all serve as reminders.

Step 3: Ticketing

Finally, after the warning time expires, hold a press conference announcing when and where the law enforcement operations will occur. If offenders continue unsafe behaviors, officers issue tickets.

Evaluation Plans

Evaluation is used to determine if the aims of the strategies are being met and to assure that resources are directed toward efforts that show the greatest likelihood of success. Also, evaluation can identify needed adjustments to the program while it is underway. This information describes how to conduct a SRTS program evaluation that is tailored to that program's objectives and strategies.

Evaluation allows for:

- Making sure that the underlying problem is identified so that proper strategies to address the problem are picked.
- Setting reasonable expectations about what the program can do.
- Identifying changes that will improve the program.
- Determining if the program is having the desired results.

The evaluation process mirrors the lifespan of a program. Each evaluation time provides important information that can strengthen or improve a program. *Before* the program, the evaluation process collects baseline information and helps plan the program. *During* the program, the process identifies progress and/or challenges and areas needing improvement. *After* the program, the process identifies changes in behaviors, attitudes and/or the physical environment and is used to inform decisions about the future of the program.

The Phase I plan will help our community understand what is happening in and around the CVCS and ZES campuses. Baseline information has been collected in order to discover barriers and assets to walking and bicycling and to understand the circumstances before a program takes place. Baseline data collection also serves as a reference point against which to compare conditions during and after the SRTS program, such as the number of walkers.

Phase I Evaluation

School information

School information includes particular characteristics about a school and its circumstances that influence walking and bicycling by students.

Walking and bicycling numbers

This information includes the number of students walking and bicycling to school and the number that live close enough that walking and bicycling would be an option if all other conditions, such as safety and convenience, were met.

Safety issues

Safety issues include traffic, personal safety and lack of facilities, such as sidewalks, bike paths, crosswalks, or bicycle racks.

Parents, children and school staff all have attitudes about walking and bicycling that influence their behavior. For example, if parents believe that children are more attentive at school if they walk, then this may motivate them to walk to school with their child.

Tools Used for Collecting Information

- The student travel tally revealed current walking and bicycling counts.
- The parent survey uncovered attitudes about walking and bicycling and provided insight into what kinds of actions might increase the number of children walking and bicycling.
- The walking and bicycling route assessments identified safety issues and other problems on travel routes.
- Interviews with the school principals, staff, parent neighborhood residence, city and county officials and the busing administrator provided a great deal of valuable information. Some of the data gathered included the following:
    - The number of children who live within walking or bicycling distance
    - How the school district defines walking and bicycling distance
    - School personnel who might be interested in participating in a SRTS program
    - Rules or policies that impact travel to school

Cottonwood Valley Charter School

1. Program planning information

1a. Program goals

- Increase safe walking and bicycling to school.
- Reduce traffic speeds on Neel Street.
- Reduce traffic congestion around school.
- Encourage bus ridership.
- Improve the drop-off and pick-up zone.
- Increase visibility of school zone to drivers.

1b. Local conditions and issues

(1) School information

- 56.5 percent of school enrollment lives within a mile of school.
- The school has no policies against walking or bicycling.

(2) Walking and bicycling numbers

- 21.8 percent of children walk or bicycle to school.

(3) Safety issues

- The principal stated that Neel Street vehicle speeds, the visibility hazard of the Neel Street irrigation road dip, poor crosswalk visibility and the need for improving the total school-zone visibility are the greatest safety issues facing the school.
- Police stated that speeding was a problem, with many vehicles going 35 mph instead of 15 mph through the school zone during morning arrival and afternoon departures.
- "Walk-ability" audits of routes to school showed poor conditions for walking, particularly south of campus. A "bike-ability" audit showed similar poor conditions.

(4) Attitudes affecting walking and bicycling

- The parent survey rated distance, traffic volume, traffic speed and safe crossings as main concerns, in that order.

(5) Other assets that can benefit the program

- Opportunities exist to receive grants to fund the program.
- Parents are willing to provide volunteer help.
- Strong school sponsorship and school leaders will benefit both the program and the school.

Zimmerly Elementary School

1. Program Planning Information

1a. Program goals

- Increase safe walking and bicycling to school.
- Address the Middle Road hazard affecting safe walking and bicycling from north, east and south neighborhoods.
- Reduce family-vehicle traffic congestion around school; 84 percent of all traffic around ZES is school related.
- Redesign campus parking and the student drop-off and pick-up area to prevent traffic mixing with walkers and bicyclists.
- Provide additional campus entrance for walkers and bicyclists from north, east and south neighborhoods.

1b. Local conditions and issues

(1) School information

- 51.8 percent of school enrollment lives within a mile of school.
- The school has no policies against walking or bicycling.

(2) Walking and bicycling numbers

- 8.1 percent of children walk or bicycle to school.

(3) Safety issues

- The principal and school staff stated that the Middle Road hazard is a priority, and parking lot speeds from family vehicles can be excessive. They also noted that new school entrances create safety issues under current campus and neighborhood conditions involving the Middle Road hazard zone.
- "Walk-ability" audits of routes to school showed poor conditions for walking, particularly east and south of campus. "Bike-ability" audits showed similar poor conditions.

(4) Attitudes affecting walking and bicycling

- The parent survey rated distance, safe crossings, traffic speed, and traffic volume as main concerns, in that order.

(5) Other assets that can benefit the program:

- Opportunities exist to receive grants to fund the program.
- Parents are willing to provide volunteer help.
- The school's administration and staff will participate in SRTS education and encouragement programs.

Next Steps

- The SRTS Phase I Coordinator will present the SRTS Phase I Plan to Socorro's City Council at their June 2011 meeting, and will be attended by Socorro's Fitness and Nutrition Committee.
- Close-out SRTS Phase I by submitting Socorro's SRTS Phase I Plan with completed financial invoices to NMDOT in mid-June 2011.
- Complete Phase II application during the summer of 2011.
- Determine engineering priorities and request firm cost estimates.
- Draw up a neighborhood (routing) map with engineering improvement priorities. On the map, include boundaries (attendant, walking, two mile radius), street names with crosswalks marked, sidewalks, formal and informal paths, on-street bicycle facilities such as bicycle lanes and paved shoulders and traffic calming features.
- Seek additional funding to leverage the SRTS Phase II funds.
- Organize the schools for encouraging and educating students to increase their participate in walking and bicycling to school; include team development, with champions and parent involvement.

Appendix

Some material has been adapted from the
National Center for Safe Routes to School,
www.saferoutesinfo.org

A Summary of Team Meetings and Events

- Monthly Fitness and Nutrient Committee meetings for plan review, plan guidance and event planning; October 2009 to June 2011.
- SRTS coordination, review and planning meetings with ZES/CVCS principals and teaching staffs; four in 2009, eighteen in 2010 and five in 2011.
- NM SRTS training; November 2009.
- Bicycle Rodeos and Trainings; four events October 2009 to May 2011.
- Fund raising for student prizes sponsored by the Fitness and Nutrition Committee's "Passport" fitness education/participation/promotion program; September 2009 and September 2010.
- National SRTS Walk to School participation; two events October 2009 and October 2010.
- Grant written to acquiring 52 helmets for student distribution; spring/summer 2010.
- CVCS Safety Committee meeting; April 2010.
- ZES Summer School participation; four events June 2010 to July 2010.
    - Bicycle safety training and helmet distribution.
    - Computer training Google mapping, students discovering best routing to school for home.
    - Student campus walks completing engineering assessments.
    - Student large poster creation with SRTS themes.
- Decision-maker meetings, reviewing and planning SRTS Phase I Plan; January 2010 and November 2010.
- City of Socorro Engineering meetings, assessing engineering changes to local roads and school campuses; six in 2010 and one in 2011.
- Socorro school district busing director meetings to access busing data and encouragement programs; two meetings in 2010 and three in 2011.
- Girl Scout Troop Leader meeting to organize walking and bicycle trains to school events; February 2011.

Recommended Engineering Techniques for Improving Socorro

Universal Design and Access

The purpose of universal design is to provide an environment that is equally accessible and comfortable for users of all abilities and ages, including children. To help ensure access for all, the Americans with Disabilities Act (ADA) of 1990 prohibits discrimination on the basis of disability. Sidewalks and other pedestrian facilities in the public right-of-way are subject to the requirements of the ADA. In 2004 the U.S. Access Board released the Americans with Disabilities Act and the Architectural Barriers Act (ADA–ABA) Accessibility Guidelines for Buildings and Facilities (www.access-board.gov/ada-aba/final.htm). These guidelines contain scoping and technical requirements for accessibility to sites, facilities and buildings by all users. Much of the information on walkway and street design contained in the ADA–ABA guidelines are contained in the 1999 Accessible Rights-of-Way: A Design Guide (www.access-board.gov/prowac/guide/PROWGuide.htm).

Sidewalks

Paved sidewalks are important features of a walking route to school. They should have a level, hard surface and be separated from motor vehicle traffic by a curb, buffer or curb with buffer. Sidewalks provide places for children to walk, run, skate and play, and are often used by young bicyclists. Sidewalks improve mobility for pedestrians and provide access for all types of pedestrian travel to schools, as well as work, parks, shopping areas, transit stops and other destinations. Many of our Socorro streets around schools are not equipped with sidewalks and can be unsafe for walking. Often they are narrow, overgrown with vegetation, abruptly end, have broken pavement, provide poor wheelchair access or have obstructions such as utility poles and signage in the pavement lane.

Sidewalk Width

The preferred minimum sidewalk width recommended for safe routes to schools is five to six feet. The six-foot width allows two people to walk comfortably side-by-side and provides sufficient space for pedestrians passing from the opposite direction. All sidewalks within a block of the schools to be six to eight feet with a continuous connective flow. Four-foot minimum wide sidewalks throughout our neighborhoods and six-foot-wide sidewalks on main throughways would provide substantial community benefit. Estimated cost: Adding a raised median or widening a sidewalk is approximately $100,000 or more per mile.

Sidewalk and Landscaping Maintenance

Sidewalks and adjacent landscaping should be monitored for conditions that may impede safe pedestrian use. Sidewalks that have been damaged by tree roots, ground swelling or heat buckling present a tripping danger to pedestrians. Sidewalks must be smooth and in good repair to accommodate wheelchairs, strollers, young bicyclists and skateboarders. A program to monitor sidewalks for repair should be instituted by our city. Properly maintained landscaping along sidewalks helps maintain appropriate sight distances and makes it easier for pedestrians to use the sidewalks.

Curb Ramp Design

Curb ramps should be perpendicular wherever possible, where each corner has two ramps installed perpendicular to the face of the curb (vs. a single ramp facing diagonally into the intersection). A big advantage of having two ramps at the corner and small curb radii is that the curb ramps can lead directly along the line of travel. ADA guidelines recommend two curb ramps at every intersection, one for each roadway to be crossed, rather than one curb ramp in the center. Two ramps guide pedestrians into the crosswalk rather than into the middle of the intersection. Two ramps that end at the crosswalk also provide directional guidance to pedestrians with vision impairments.

Truncated Domes

Truncated domes are the standard design requirement for detectable warnings on curb ramps and at transitions from sidewalks to street crossings. These small, flattened domes provide a surface that is distinguishable underfoot and by cane. ADA guidelines require the use of a truncated dome warning strip at the bottom of every newly constructed curb ramp. These domes provide a tactile warning to pedestrians with a visual impairment who would otherwise be given warning by the presence of a curb. The truncated dome tactile strip should be two feet deep for the entire width of the ramp and should have a contrasting color with the adjacent sidewalk.

Driveway Design

Properly designed driveways, as they cross sidewalks, can enhance pedestrian safety by providing a consistent surface and by reminding drivers that they are crossing a sidewalk. The following principles should be applied to driveway design:

- The sidewalk continues across the driveway at the same elevation or level.
- The driveway apron does not go through the sidewalk.

At driveways, there is no need to break the sidewalk network. Driveways should not look like intersections. Radius driveway designs encourage higher turning speeds and make it less likely that the drivers will yield to pedestrians on the sidewalk.

Street Lighting
Street lighting improves pedestrian visibility and personal security by allowing pedestrians and drivers to see each other. It also adds to personal safety and aesthetics. Lighting can also be helpful along streets adjacent to the school grounds to minimize school vandalism and improve security.

Bicycle Facilities
Bicycling is an important way for children to travel to and from school. Bicycling can allow students who live too far from school to walk an opportunity to participate in active transportation. Use of on-street facilities is more appropriate for upper elementary school and older children who have sufficient bicycle handling skills and knowledge of bicycle and traffic safety rules.

Bicycle Racks
Providing a secure and convenient location for bicycle parking is one way to help encourage more children to bicycle to school. A sufficient amount of parking must be made available so that bicycles are not crowded. A good bicycle rack should keep the bicycle upright by supporting the frame without bending the wheel and should allow the frame and at least one wheel to be locked to it. Bicycle racks should be placed in a location that will minimize vandalism and maximize use while avoiding conflicts with driveways, buses and large numbers of walkers. Racks should be located in a visible location, convenient to the school entrance. Ideally, bicycle racks should be protected from the weather.

Bicycle Lanes
Bicycle lanes provide a striped and stenciled lane for one-way bicycle travel on roadways. Bicycle lanes offer a comfortable space for older or more experienced children to ride. Bicycle lanes have been positively associated with an increase in the share of commuting by bicycle to work. Typically, bicycle lanes are installed on roadways with higher traffic speeds and volumes. However, where the lane is directly serving a school, communities may elect to stripe bicycle lanes on low-traffic residential streets in order to provide an additional level of visibility for younger bicyclists.

Bicycle lanes located next to motor vehicle parking should be at least five feet wide. The preferred width of bicycle lanes next to a curb is also five feet, although four feet (excluding the gutter pan) may be adequate. Bicycle lanes should not be wide enough to accommodate a motor vehicle as drivers may attempt to use a wide bicycle lane as a travel lane. Bicycle lanes should be designated through the use of signs or painted symbols and motor vehicle parking restrictions. Socorro has extensive share-the-road lane markings where parked vehicles and bicycle traffic share a lane.

Bicycle lane widths have been reduced to the point of failing to respect the purpose of the bicycle lane, thereby causing pinch points at various intersections. An example is the intersection of Franklin and School of Mines where the extra vehicle turning lane encroaches into the bicycle lane. Traveling on Franklin Street the lane narrows to less than one foot approaching the intersection of School of Mines.

For additional bicycle safety no parking zones can be extended up to 100’ from an intersection providing bicycle only lanes priority around intersections.

Crossing the Street

Safe design at pedestrian crossings is best accomplished when the street crossings are kept simple. The development of safe crossings for children is guided by several principles including the need to:

- Establish or identify good crossing locations.
- Reduce crossing distances.
- Use appropriate traffic controls such as marked crosswalks, traffic signals and warning signs or flashers to enhanced crosswalk visibility.
- Slow motor vehicle speeds.

Tools to Reduce Crossing Distances for Pedestrians

The distance required to cross a street and the length of time that a pedestrian is exposed to traffic can be shortened with curb extensions and crossing islands. Curb extensions, also known as curb bulbs or bulb-outs reduce the distance pedestrians must walk in the street, while crossing islands also simplify a crossing by breaking it into two pieces.

Curb Extensions

Curb extensions narrow the roadway and reduce crossing distance by providing an extension of the sidewalk area into the parking lane. They improve visibility between drivers and pedestrians by moving the pedestrians away from parked cars. This is especially important for smaller children who are often invisible behind parked motor vehicles and may take longer to cross the street. A curb extension also can slow turning vehicles and prevent drivers from parking on or near a crosswalk. Curb extensions must be designed to accommodate drainage. There are cases where curb extensions may not be needed on every leg of an intersection, such as when the street leg is narrow, parking is not permitted, or the curb would interfere with a bicycle lane or the ability of fire trucks or other large vehicles to negotiate a turn. Estimated cost**:** Curb extensions cost from $5,000 to $25,000 per corner, depending on design and site conditions. Drainage is usually the most significant determinant of cost. If the curb extension area is large and special pavement and street furnishings and planting are included, costs would also be higher. Costs can

rise significantly if something major, such as a utility pole or controller box, is moved.

Crossing Islands

Pedestrian crossing islands (also known as refuge islands) are raised islands located in the middle of a street that narrow the travel lanes at that location. These can be located midblock or at an intersection. Crossing islands simplify and reduce the pedestrian exposure time at a crossing. By breaking the crossing into two stages, crossing islands improve pedestrian wait time, reduce crossing distance and allow pedestrians to focus on one direction of traffic at a time. Crossing islands are designed with a gap that is level with the street to allow wheelchairs and pedestrians to cross through the island. Crossing islands provide refuge for those who begin crossing too late or are too slow to cross the entire street in one signal cycle. This particular design tool is recommended for Spring Street (Route 60) at both Park and Grant Street crossings. Estimated cost: Costs range from $4,000 to $30,000. The cost for an asphalt island or one without landscaping is less than the cost of installing a raised concrete pedestrian island with landscaping.

Waiting Areas and Stand-back Lines

Larger waiting areas and stand-back lines are low-cost measures to improve safety at busy crossings. Large groups of students should not be waiting to cross immediately next to high-speed moving traffic. Waiting areas at crosswalks can be provided along with stand-back lines painted to keep children waiting to cross further from busy streets. When adequate waiting areas and stand-back lines are provided, the adult school crossing guard should be the only person between the curb and the stand-back line. The stand-back line gives the guard something to point at when telling children to stand back from the street.

Multiple Lane and Wide-Road Lane Threats:
Why Fewer or Narrower Lanes are Better

Street crossings are safer for pedestrians when there are fewer lanes to cross. Multiple lane threat is a problem that arises when pedestrians have to cross more than one lane in each direction. A multiple-threat pedestrian crash is a crash that occurs when a motor vehicle in one lane stops and provides a visual screen to the driver in the adjacent lane. The driver in the adjacent lane continues to move and hits the pedestrian. This type of collision, where the pedestrian is hit in the second lane, typically results in a more serious collision owing to a higher impact speed. Additionally, providing yield lines and set-back stop lines can reduce the risk of a multiple threat

crash.
One way to reduce the wide lane and multiple lane threat to pedestrians is to decrease the width of the road and number of lanes that pedestrians must cross. This “road diet” is one of the best tools to improve the safety of pedestrian crossings by reducing the number of through lanes for motor vehicles. The next three images illustrate the road diet applied to a four-lane roadway that is difficult to cross. Pedestrians must cross four travel lanes, there is no center pedestrian crossing island, no buffer between the road and sidewalk and there is no designated space for bicyclists. Additionally, it is difficult for drivers to make left turns into the driveways and side streets along this road.

Through the road diet, the roadway has now been reduced from four lanes to three lanes, one lane in each direction plus a two-way center turn lane. There is now room to install bicycle lanes, and the bicycle lanes create a sidewalk buffer for pedestrians. This road diet was accomplished with paint, which has a relatively small cost and requires no construction. A much better pedestrian connection along this roadway is now possible. The re-striping of this roadway improves pedestrian crossings along the entire corridor since pedestrians only cross two through lanes, versus four lanes of travel. This roadway configuration also allows for the placement of crossing islands at some locations. Adjacent residents and businesses also benefit from this change because left turns into and out of their property are now easier. Thus, road diets can benefit pedestrians, bicyclists, drivers and adjacent businesses.

The center lane can be supplemented by landscaped crossing islands with dedicated left turn pockets at some locations. In the end, road diets are one of the best improvements to create a balanced transportation system that meets the needs of all users, including children on their journey to school.

Four-lane road that is difficult for pedestrians to cross before the road diet.

The same road is converted to three lanes plus bicycle lanes after the road diet.

Pedestrian crossing islands can be added in the center lane at select crossing locations.

Marked Crosswalks

Providing crosswalks that are very visible helps remind drivers that these are important pedestrian crossings. High-visibility crosswalks listed in the MUTCD (http://mutcd.fhwa.gov) include ladder and diagonal markings. Although no differences in pedestrian crash risk have been found between parallel crosswalk lines and high-visibility markings, high-visibility markings are more visible to drivers compared to parallel line markings. The ladder markings are spaced between tire tracks to increase longevity. Ladder or diagonal markings are being recommended at main crosswalks within one mile of campuses. Estimated cost: Approximate installation costs are $100 ($400 for four legs of an intersection) for a marked crosswalk with two transverse lines, $300 ($1200 for four legs of an intersection) for an international (ladder or zebra) crosswalk.

Yield Lines and Set-back Stop Lines

Yield lines and set-back stop lines in advance of crosswalks can improve a driver's view of the pedestrian in the crosswalk, reduce the number of motor vehicles encroaching on the crosswalk and indicating that drivers should yield to pedestrians in advance of crosswalks. Stop lines are used in advance of marked crosswalks at signalized intersections, while yield lines are placed in advance of crosswalks with no signals.

A clear and simple marked crosswalk with set-back yield markings placed well in advance of the crosswalk can reduce the chance of a multiple-threat collision. A YIELD HERE FOR PEDESTRIAN sign is important in addition to the advance yield line. Estimated cost:
There is little additional cost when the advance stop/yield line is installed on new paving or as part of repaving projects. Approximate installation costs are $60 ($180 for four legs of an intersection).

Parking Restrictions at Corners

Restricting parking at corners will improve visibility of the crossing for both drivers and pedestrians. At a minimum, 30 feet should be kept clear in advance of marked crosswalks to help pedestrians and drivers see each other better. Distances greater than 30 feet are generally better, but parking restrictions have to be balanced with the needs of the driver.

Slowing Down Traffic

High-speed motor vehicles pose a serious threat to the safety of children who are crossing streets. One of the biggest challenges in providing children with safe walking and bicycling routes to school involves slowing down traffic.

Slower motor-vehicle speeds allow drivers to stop in a shorter distance and reduce the chance of injuring a pedestrian or bicyclist. A motor vehicle traveling on a level surface at a rate of 40 mph will need nearly 300 feet between the vehicle and the child to stop in time to avoid a collision. This distance is reduced to approximately 197 feet for a vehicle traveling at 30 mph, 112 feet for a vehicle traveling at 20 mph and 77 feet for a vehicle traveling at 15 mph. Pedestrian crash severity is also much lower at low motor vehicle speeds. If a pedestrian is struck by a motor vehicle traveling at 40 mph there is 85 percent likelihood that the pedestrian will be killed. This percentage drops to 45 percent at 30 mph and 5 percent at 20 mph. Thus, slowing motor vehicle speeds not only reduces the chance of a crash due to the shorter stopping distance that is required, but it also reduces the chance of a pedestrian fatality or serious injury.

When slowing or "calming" traffic, the right design invites the right driver response. The guiding principle of traffic calming is to influence driver speed and behavior through good design whenever possible, rather than by traffic control measures such as traffic signals and STOP signs. There are many design and engineering tools that can be used to slow down traffic and make it safer for children to walk and bicycle to school including the following:

- Narrow lanes.
- Chokers and chicanes.
- Speed bumps.
- Raised pedestrian crosswalks.
- Reduced corner radii.

Narrow Lanes

There are several ways to narrow a street. Paint is a simple, low cost and easy way to narrow the street or travel lanes. If the narrower lanes can result in a striped shoulder, the shoulder will provide a buffer for pedestrians, a place for bicyclists to ride and a refuge for disabled motor vehicles. The shoulder stripe will also provide better driver guidance. Interior traffic lanes can be narrowed to 10 feet wide to encourage slower speeds. Narrow lanes can also result from road-diet projects which can include painted medians, center turn lanes, bicycle lanes or parking lanes. The narrower lanes can reduce motor vehicle speed, which will reduce the chance of pedestrian and bicycle crashes and reduce the lengths of pedestrian crossings. Estimated cost: Reducing the width of lanes due to adding bicycle lanes costs approximately $1,000 per mile. Completely

re-striping a street to reduce lanes, add bicycle lanes or add on-street parking costs approximately $5,000 to $10,000 per mile. Costs vary by technique.

Chokers and Chicanes

Traffic calming can also result from narrowing the street through the use of chokers and chicanes. Chokers narrow both sides of the street to form a section of about 20 to 24 feet wide. Chicanes provide alternating narrow and wide sections, and a curved driving path similar to a slalom. Chicanes work best when supplemented with center-line striping and in some cases edge line striping. Both chokers and chicanes need to have a vertical element in the narrowed section such as landscaping so the narrowed section can be seen easily by approaching drivers. Lighting at the narrowed section is also helpful. If drivers do not see and perceive the narrowing treatments, they may not slow down, and they may even collide with the narrowed street section. Care must be used to accommodate storm water runoff when designing chokers and chicanes, and they should not be used if it will result in the loss of bicycle lanes or badly needed on-street parking. These engineering improvement options need only be considered within one or two blocks on school campuses. Estimated cost: Chokers $5,000 to $20,000, depending on site conditions and landscaping. Drainage may represent a significant cost. Chicanes: Costs for landscaped chicanes are approximately $10,000 (for a set of three chicanes) on an asphalt street and $15,000 to $30,000 on a concrete street. Drainage and utility relocation often represents the most significant cost consideration.

Speed humps

Speed humps represent one type of traffic calming measure that has been used by many local agencies for slowing traffic. Modern speed humps are 12 to 14 feet wide and have a rounded appearance that is 2.5 to 4 inches high at the center. Longer and flatter speed humps are referred to as speed tables. Speed humps have been shown to reduce motor vehicle speeds on streets where they were installed. Despite their ability to reduce motor vehicle speeds, speed humps have certain disadvantages and are generally disliked by many drivers, fire departments and other emergency service providers. They often are not feasible on collector streets or arterial streets due to their impact on emergency response times. Other problems with speed humps include their impact on storm water runoff and snowplowing, and complaints about drivers driving onto the sidewalk to avoid the hump. The presence of speed humps also complicates street resurfacing. Speed tables or raise pedestrian crosswalks are preferred options over traditional speed bumps. Estimated cost: The cost for each speed hump is approximately $1,000, depending on drainage conditions and materials used.

At a speed table, a marked crosswalk provides a level area for pedestrians crossing the street. Traffic is slowed as drivers must go up and over the crosswalk.

Raised Pedestrian Crosswalks

Raised pedestrian crosswalks serve as traffic calming measures by extending the sidewalk across the road and bringing motor vehicles to the pedestrian level. The raised crosswalks allow the pedestrian to cross at nearly a constant grade without the need for a curb ramp and makes the pedestrian more visible to approaching drivers. They have a trapezoid-shaped cross-section to slow drivers at the pedestrian crossing where the slowing will be most effective.

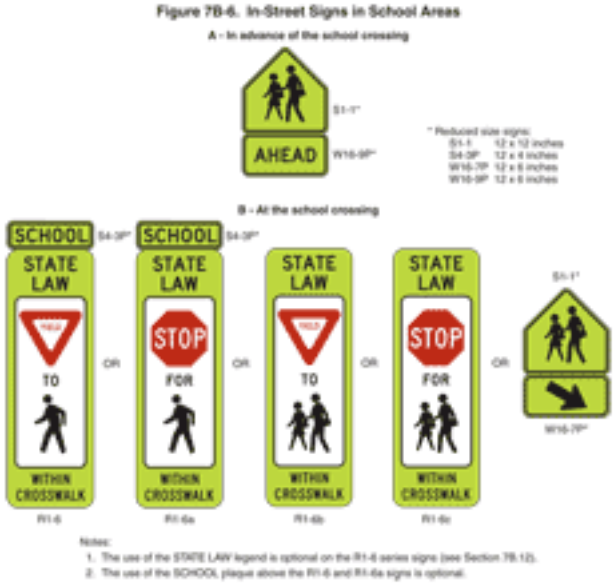
Roadways are not the only places traffic calming devices can be useful. Raised crosswalks can be used in school parking lots to slow traffic and more safely allow pedestrians to cross the parking lots. When used, care must be taken to accommodate drainage in the parking lot and to prevent water from pooling. Estimated cost: Raised crosswalks are approximately $15,000 to $100,000, depending on drainage conditions and material used. The cost of a raised pedestrian crossing is highly dependent on the size of the roads.

Reduced Corner Radii

There is a direct relationship between the size of the curb radius and the speed of turning motor vehicles. A large radius may easily accommodate large fire trucks, other large trucks and school buses, but it also allows other drivers to make high-speed turns, and it increases the crossing distance for pedestrians. Drivers who drive faster are less likely to stop for pedestrians. A larger radius will also result in a longer crossing distance for the pedestrian. The solution is to reduce the curb radius.

When designing curb radii, consider what motor vehicles actually need when turning. Instead of assuming that every corner needs to be cut back, look at other factors such as on-street parking and bicycle lanes to determine how much space a turning motor vehicle will need. The effective radius that exists should include the width of parking lanes and bicycle lanes on both streets. Large trucks do not need to stay on their half of the street when turning on local streets. There is not a need to design for the largest vehicle that may use a street, especially for streets inside neighborhoods. Estimated cost: Construction costs for reconstructing a tighter turning radius are approximately $5,000 to $30,000 per corner, depending on site conditions (e.g., drainage and utilities may need to be relocated).

School Zone Signs



Estimated cost : $50 to $150 per sign plus $150 /sign in installation costs.

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Potential Funding Sources

Parts of a SRTS program will cost very little money. For example, most International Walk to School Day coordinators say they spend less than $100 on their events. There are many low-cost engineering solutions that can be put into place in a relatively short amount of time such as new signs or fresh paint on crosswalks. On the other hand, some changes, such as new sidewalk construction, may need large amounts of capital. There are several places to seek funding for SRTS program activities including:

- Federal programs: SAFETEA-LU (including funds allocated to SRTS), Congestion Mitigation and Air Quality, Surface Transportation Program, Recreational Trail Program and others.
- State SRTS programs.
- New Mexico's federally-funded Recreational Trails Program, see New Mexico State Parks, www.emnrd.state.nm.us/PRD/rectrails.htm
- Federal Enhancement funding for bicycle and pedestrian facilities as well as safety activities, see the National Transportation Enhancement Clearinghouse (NTEC) at www.enhancements.org.
- Federal Community Development Block Grant (CDBG), see www.hud.gov/offices/cpd/community/development/programs.
- The National Park Service: Rivers, Trails and Conservation Assistance (RTCA) grant applications at www.nps.gov/ncrc/programs/rtca
- Environmental and air quality funds.
- Health and physical activity funds.
- County and city funding.
- Private grant funding, see The Foundation Center at http://foundationcenter.org/findfunders.

For more information about funding resources, see http://guide.saferoutesinfo.org/legislation_funding/.

Effective Education Strategies

Planning successful Safe Routes to School (SRTS) education activities requires considering how children and adults learn best. Children benefit from a combination of educational methods such as group activities, hands-on skill building and discussion. Many of the pedestrian and bicyclist safety skills that children need cannot be taught solely by verbal instruction; they also require practical experience. Hands-on activities, such as simulated street crossings and bicycle handling drills provide children with opportunities to watch and apply safety skills. A parent or instructor walking or bicycling with a child enables the child to learn in a "real world" setting, and allows the adult to assess how well the child understands and applies safety skills.

Adults learn best when they feel the topic is relevant to them. SRTS education aims to provide parents with information about how to address barriers to walking and bicycling and how to create and promote safe walking and bicycling behaviors and environments for their children. For example, if vehicles frequently speed near the school, parents may be educated on both how the speed of a vehicle hitting a pedestrian relates to the seriousness of injuries and potential solutions for improving safety.

Teaching children to safely walk and bicycle is of central importance in Safe Routes to School (SRTS) programs. A secondary, valuable focus is teaching children about the benefits of walking and bicycling, such as the positive impact these activities have on personal health and the environment. Knowing these benefits can help children understand the importance of these activities and can inspire participation.

School-based Education

Delivery of SRTS education through the school is important because:

- While ideally children receive most of their instruction from parents, this does not always happen. School-based education assures that all children get the chance to learn and practice the same skills.
- All children can benefit from learning bicycle and pedestrian safety behaviors, regardless of whether they will walk and bicycle to school, as these skills will serve them throughout life.
- The reality in some communities is that young children who would ideally be supervised by adults are walking to school alone, which makes providing safety education and other strategies all the more important.

When to Teach

A challenge with providing safety education in the schools is that children, even in the same grade, vary in their readiness to handle traffic situations, such as choosing a safe time to cross a street. In general, children are not ready to cross a street alone until age 10. Ideally parents are central figures in each child's safety education. Parents have the best opportunities to effectively assess their individual child's skills and to teach safe behavior in the course of daily life, and so they should be encouraged to participate in their child's safety education. It is also important to emphasize to children that they need to check with their parents before walking or bicycling

alone. Children may believe that because they have been taught how to cross a street, for example, that they are ready to do so on their own.

Key Messages for Children

Essential skills that should be taught to children in the SRTS program include the following topics:

- Pedestrian safety skills
- Bicyclist safety skills
- Personal safety
- Health and environment benefits

Pedestrian Safety Skills

When pedestrians between the ages of five and nine are injured it is most often when motor vehicles have hit them as they cross the street midblock, particularly from between parked motor vehicles. Running across intersections and getting off of school buses are also common times for children to be hit by motor vehicles.

All children need to know the following points:

- Ask a parent before walking anywhere without them.
- Use sidewalks or paths. If there are no sidewalks or paths, walk as far from the motor vehicles as possible on the side of the street facing traffic.
- Watch for motor vehicles turning or pulling out of driveways.

Children who are old enough to walk alone and have parent permission to cross the street also need to know the following points:

- Choose the route with the fewest streets to cross.
- Avoid crossing busy or high-speed streets.
- Be more visible to drivers by wearing bright clothing in the daytime.
- When there is little or no light, such as at sunrise or sunset, wear retro-reflective gear or carry a flashlight.
- Always look for motor vehicles.
- Drivers are supposed to obey the rules and watch for pedestrians, but they cannot be relied on to always do so.
- Do not cross behind or within 10 feet of the front of a bus or other large motor vehicle because the driver cannot see this area.
- Stop at the edges of driveways and curbs or edges of the street where no curb exists and look for motor vehicles before proceeding.
- Watch for parked motor vehicles that may be getting ready to back up or pull forward.
- Before crossing, always look for motor vehicles even after a crossing guard, parent or other adult says it is okay to cross.
- Walk, don’t run, across the street.

If crossing the street at midblock:

- Stop at the curb and look left, right and left again for traffic.
- Wait until no traffic is coming to begin crossing.
- Keep looking for traffic until you have finished crossing.

If crossing between parked motor vehicles is necessary:

- Stop at the curb and check to see if the motor vehicles are running or if anyone is in the driver seat.
- If there is a driver, make eye contact and be sure you are seen before stepping in front or behind the motor vehicle.
- If it appears safe to cross, walk to the edge of the parked motor vehicles, and look left, right and left again before crossing. Keep looking for traffic until you have finished crossing.

If crossing the street at an intersection:

- Obey traffic signs and signals.
- When the signal indicates it is time to cross, check for motor vehicles.
- Drivers may not obey the rules, and turning drivers may not look for pedestrians.
- Look to see if motor vehicles are coming.
- Look left, right and left; then look behind and in front for turning motor vehicles.
- Keep looking for traffic until you have finished crossing.

Bicyclist Safety Skills

Riding a bicycle is a major step towards independence and mobility for children and, like walking, is a skill that can be used throughout a lifetime. Supervised practice time on the bicycle is the most important way for children to gain riding and safety skills. It can also instill confidence and create better riders as well as better future drivers who are more aware of bicyclists on the street.

Before riding to school, children first need to have sufficient bicycle-handling skills, including the those below:

- Children must be able to ride in a straight line.
- While riding, they must be able to scan the situation ahead, behind and to the side.
- They must have enough experience to be able to stop quickly, using the bicycle's brakes without swerving, falling or colliding with anything.
- They must know how to swerve in a controlled manner to avoid a hazard or collision.

Children should follow these rules when preparing to ride a bicycle:

- Dress appropriately. Wear brightly colored, close-fitting clothing. Tie your shoes and secure long laces and loose pant legs. Do not wear headphones.
- Wear a properly fitted helmet.
- Ride a bicycle that fits. When seated on the bicycle, both feet should be firmly planted on

the ground and hands should reach the handlebars.

- Ride a bicycle that is in good condition. Tires should be firm, brakes should prevent tires from rotating when pushed, chain should not droop or be rusty, and the seat and handlebars should be tight.
- Do not carry anyone else on the bicycle. A bicycle with one seat is a bicycle for one person.
- Do not carry anything in your hands. Use a backpack, basket or panniers to carry school supplies and books.
- It is best to ride only in daylight. If riding when it is dark, use headlights, taillights and reflectors; and wear bright clothing with reflective material.

These rules are essential for safety during the ride:

- Choose the route with the fewest streets to cross. Avoid busy and high-speed streets.
- Before entering the street, look for other vehicles to the left, right, in front and behind.
- Keep paying attention to your surroundings. Watch for other vehicles and hazards along the route, such as potholes and parked motor vehicles.
- Watch for motor vehicles turning into or exiting from driveways.
- Stop at all intersections, and check for traffic before crossing. When possible, cross at locations where adult school crossing guards are present. It may be best to dismount and walk your bicycle across large or busy intersections.
- Ride in a straight line with two hands on the handlebar unless signaling.
- Follow all traffic laws, including these:
    - If riding in the street, ride in the same direction as motor vehicles, on the right-hand side of the street, about two or three feet from the edge.
    - Use hand signals when turning and stopping.
    - Obey traffic signs and signals.
- Always check in front and behind for traffic before changing lanes, crossing intersections or turning.
- If riding on a sidewalk or path, ride slowly and be prepared to stop quickly.

Both CVCS and ZES have the opportunity to offer workshops for bicyclists through the League of American Bicyclists; Wes Young, a professionally certified league cycling instructor (LCI), is an experienced instructor residing in Socorro.

Bicycle Helmets

The protective effects of bicycle helmets are well-documented. Studies on bicycle crashes have shown that helmet wearers have significantly lower risks of head and facial injuries than bicyclists without helmets. In fact, one study found that wearing a helmet reduced the likelihood of head injuries and brain injuries by 85 percent and 88 percent respectively. By New Mexico

law, bicycle helmets must be used by students participating in bicycling programs and by students bicycling to school.

Personal Safety

In addition to pedestrian and bicyclist skills, many schools teach children ways to avoid potential risks in their environment beyond traffic, such as predatory individuals and other criminal activity. We found through our parent survey that fear of abduction or assault discourages some parents from allowing their child to walk or bicycle to school. Although child abduction, particularly near a school, is very rare, SRTS programs need to address not only the real dangers from crime, but also parents' perceptions. Whether dangers are real or perceived to be, both affect parents' decisions to allow their children to walk or bicycle to school. Some students and parents worry about bullying by other children while walking or bicycling to school. Schools address bullying as part of violence prevention programs, which can be incorporated into the SRTS program.

Walking Trains (or "Walking Buses") can help address personal safety concerns by providing a way for children to walk in a group with adult supervision.

Health and Environment Benefits

Beyond safety, education for children may also address benefits to personal health and the environment provided by walking and bicycling. Health benefits often focus on the importance of physical activity. Children learn about how the cardiovascular and muscular systems function and how physical activity can strengthen these systems. Although most children engage in physical activity primarily because they think it is fun, highlighting the relationship between personal health and physical activity gives children another reason to be physically active. Education may also include information about the impact of motor vehicle use on air quality and limited energy resources. Children learn that they can help keep the environment healthy by walking and bicycling instead of traveling in a motor vehicle.

Strategies for SRTS Student Education

One-time Instruction

One-time instruction, such as an assembly, offers an opportunity to reach many children quickly. The event builds schoolwide excitement about bicycling and walking while offering a way to introduce safety education in schools where competing demands for class time do not allow for more extensive instruction.

Assemblies engage children best when they are short, visual, focused on a single topic and age-appropriate. Educational messages may be taught through such techniques as skits, songs, chants, photographic or artistic presentations, videos, or guest speakers. Classes working on related topics, such as health or air quality, can share what they have learned with other children in the audience.

Children may have a hard time remembering or applying what they learn in these brief sessions. One-time methods can be made more effective by reinforcing them throughout the year by

inserting messages in schoolwide announcements, signs and newsletter articles. Further reinforcing a message can be accomplished by implementing Encouragement Programs (suggested in the next plan section) offering direct learning experiences.

Lessons Integrated into Physical Education
Ideally, children will receive a comprehensive bicycle and pedestrian safety curriculum which includes hands-on skills practice. Bicycle and pedestrian safety can fit nicely into physical education with the support of a trained professional.

Lessons Integrated into Classroom Subjects
Safety education can be integrated into traditional classroom subjects to meet education standards in many ways. Examples include:

Math
- Calculate average walking speeds or distances.
- Calculate a student's collective miles walked and bicycled in a poster-graph styled to show "climbing" to the top of Mount Everest.

Science
- Walk outdoors to collect samples and observe nature.
- Learn about climate change, pollution and how walking and bicycling can play a protective role.

Reading
- Read about nature or walking.

Art
- Learn to design written safety and inspirational messages for posters or informational flyers.
- Create large informational poster boards and computer art messages.

Health
- Read about the benefits of exercise and make recess an opportunity for students to log walking miles for an Encouragement Program such as the "Golden Sneaker."
- Learn about the cardiovascular system.
- Calculate heart rates.
- Use pedometers to count steps.
- **Language arts**
- Write about walking or what is seen on the route to school.
- **Geography**
- Use Google Maps to create personal student walking and bicycle routes to and from school.
- Track students' walking and bicycling mileage and plot it on a map.
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- *School-based Instruction Requires Support*
- Teacher interest and enthusiasm is critical for success of any school-based education that

will be part of the SRTS program. However, many demands are placed on teachers. If classroom or physical education teachers are to provide instruction, it may be helpful to consider the following steps to increase the chance of a successful education component.

- **Get administrators on board.** For teachers to devote class time to instruction, the principal needs to support and encourage it.
- **Link the lesson content to state or local education standards.** Doing so will help justify the use of class time and will help children learn necessary skills and concepts.
- **Provide lesson plans to teachers.** Given the heavy workload on teachers, sample lesson plans may make it easier for teachers to get involved.
- **Encourage parent involvement.** Parents and other community members can volunteer their time to help.

Successful Encouragement Examples

A successful example: Hinsdale Consolidated School District, Hinsdale, Illinois
A few years ago, Hinsdale parents, school administration and community leaders were concerned about the increasing traffic congestion and the decreasing number of walkers around their seven neighborhood schools. Through collaboration with schools, villages and other governing bodies, their first Walk to School event was held.

The first year's celebration was promoted with the slogans, "Feel the Power of the Fourth" and "May the Fourth be With You", and signs with Yoda from Star Wars on them. The Star Wars theme was used to remind participants of the October 4th Walk to School date. As part of the day, participants were asked to complete walk-ability checklists in order to learn more about safety concerns along walk routes. Students and their families along with caregivers, law enforcement officers, firefighters, local, state and federal political leaders, teachers and staff, all wearing walk to school buttons, arrived at school on foot. A short flag pole ceremony and recognition of dignitaries and supporters wrapped up the event.

The Walk to School celebration described here as well as those held in subsequent years brought visibility to pedestrian safety concerns, which helped build support for a planned network of sidewalks, with the focus on providing walkways to schools, parks, and other locations generating pedestrian traffic. Other school based activities, including classroom lessons, mileage clubs and incentives have been initiated to meet the interest in promoting walking.

Additional special event themes can help the community focus on specific themes: Earth Day, Trail Day, Car Free Day, Traffic Safety Day, Bicycle-to-Work Day and Bike Month.

Another successful example: Mason Elementary, Duluth, Georgia
When the Safe Routes to School project started at suburban Mason Elementary School, just a handful of the 1,200 students walked to school and only one bicycled. So when the first "Walk and Roll to School Day" was planned, organizers weren't sure the event would be much of a success. Organizers reported that over 100 kids walked with the Walking School Bus, 50 joined the Bicycle Train, lots of parents came out and the enthusiasm for the now-monthly Walk and Roll to School Days hasn't let up since.

To keep it interesting, each monthly Walk and Roll event at Mason had a special theme. In November, with growing darkness, the theme was "Be Safe, Be Seen." In January it was "A Polar Bear Walk and Roll" to encourage walking and bicycling in cold weather. Children were greeted with hot chocolate and a giant painted polar bear. In February, the theme focused on healthy hearts; in March, kids were encouraged to "Be One Less Car." At the end of the school year, the theme was a retrospective of the year's Walk and Roll events including a picture album and a banner decorated with students' personal reflections on walking and bicycling to school. One fifth grader tearfully lamented moving on to middle school because she would miss these special days.

Organizers reported that the Walk and Roll events at Mason have planted the seeds for daily

walking and bicycling. The new bicycle racks are often full, walking and bicycling has become "cool" to do, and the "coolest" kids try to hide their excitement on Walk and Roll Days. "What's the big deal?" they said, "We do this every day!"

Mileage Clubs and Contests

Mileage clubs and contests encourage children either to begin walking and bicycling to school or to increase their current amount of physical activity by making it fun and rewarding. Generally children track the amount of miles they walk or bicycle and get a small gift or a chance to win a prize after a certain mileage goal is reached.

Mileage clubs and contests are usually designed in one of three ways:

1. On an individual basis where every child logs miles walked or bicycled and has a chance to win.
2. As a classroom competition where a classroom's collective miles are compared against other classes.

Winners are rewarded with prizes including medals, certificates or trophies.

These activities are very flexible. Depending on the school, the competition aspect can be emphasized or not, and the rewards can be elaborate or simple. In rural areas or other places where the route to school is unsafe or difficult to walk or bicycle, the activity can be modified by providing credit for distance walked and bicycled at home, to and from a bus stop, or during the school day on campus.

Mileage clubs and contests usually involve incentives like prizes or small gifts. In order to be most effective, incentives need to be provided in concert with other strategies over a period of time, not just given once.

A successful example: The "Golden Sneaker Award" example, Hall Middle School in Marin County, California developed the Golden Sneaker Award: a sneaker spray-painted gold and placed on a pedestal. Children keep track of each time they walk or bicycle to school and keep a classroom record. To include children who are unable to walk or bicycle to school, children are allowed to accrue miles on the weekend or during school recess (walking a designated playground trail). Each month the class with the most children walking and bicycling the greatest number of times receives the trophy and usually a celebration.

This activity can also reward children who come to school by carpool or by bus by awarding points that are accrued and redeemed for prizes.

Walking School Buses and Bicycle Trains

A walking school bus and bicycle train both consist of groups of students accompanied by adults that walk or bicycle a preplanned route to school. Routes can originate from a particular neighborhood or, in order to include children who live too far to walk or bicycle, begin from a

parking lot. They may operate daily, weekly or monthly. Often, they are started in order to address parents' concerns about traffic and personal safety while providing a chance for parents and children to socialize.

Walking school buses and bicycle trains can be loosely structured or highly organized. For example, walking buses or bicycle trains can be as simple as neighborhood families deciding to walk or bicycle together. More formal, organized walking school buses and bicycle have a coordinator who recruits volunteers and participants, creates a schedule and designs a walking route. While requiring more effort, more structured walking school buses and bicycle.

Socorro Girl Scouts are investigating the possibility of a community service project to organize and coordinate a bicycle train to school project starting in the spring of 2011.

Socorro Walking and Bicycle Trains: A possible student drop-off could be NM Tech's Brown Hall area parking lot. The one way access there increases drop-off safety. An alternative drop off point could be the corner of School of Mines and Hayden. The students then could walk the four blocks up School of Mines to school.

Example of incorporating Walking/Bicycle trains to add students that live farther away or have dangerous routes to an organized activity program: "Go for Gold" is an informal walking initiative developed to encourage children to walk to school with the added benefits of helping to reduce traffic congestion and pollution and to promote healthier lifestyles.

Children who choose to register for the activity are issued a "passport" that is marked with a sticker for every walk to school. Organizers designated drop-off and parking areas so children who live farther away have the chance to walk at least part of the way. When a student walks to school ten times, he or she receives a colored star, and different colors are awarded for successive milestones, with gold the highest ranking. Incentives are awarded according to the number of stars a student has collected.

Go for Gold is simple and inexpensive, and schools participating in the initiative have seen a significant decrease in motor vehicle use. One school reduced motor vehicle use from 62 percent in 2000 to 26 percent in 2001 with 80 percent of children participating. The reduction has been maintained at 26 percent through 2003.

Example of a Bicycle Train that worked: Planning their kick-off Walk and Roll to School Day, the Mason Safe Routes to School Team thought they'd include a bicycle train, but with only one student ever seen bicycling to school, they didn't actually expect more than a rider or two to pedal with the train that morning. To their great surprise, 45 children showed up with bicycles and helmets, eager to participate in Mason's first-ever bicycle train. .

With that overwhelming start, the Mason bicycle train has become an integral part of the school's monthly "Walk and Roll to School Day" events. The train is staffed by volunteers from the local Gwinnett County Bicycle Users Group and a few Mason parents. The "engineer" leads the group, the "caboose" brings up the rear, and adults are interspersed between the children, with a typical ratio of one adult to four children. The train has two starting "stations" in the morning, and the two groups merge to form a large train that rides down the highly traveled road to the school. In the afternoon, the bicycle trains run back to their starting stations. Prior to each monthly event, the Safe Routes Team sends each student home with a flier announcing the Walking School Bus and Bike Train schedule. The flier includes a permission slip, and students must return the permission slip signed by a parent in order to participate. This procedure helps clarify liability issues and assists in planning the number of adults needed for the event. Children in kindergarten through second grade must have a parent accompany them. At the start of each ride, the train leaders are provided a list of participants.

Riders are asked to bring their own helmet and lock, but the bicycle train leaders always have extra helmets on hand. As the group gathers, the leaders distribute bright neon-green reflective safety vests, provided by the Georgia Department of Transportation. The vests provide high visibility for safety on the road and have become the signature of the Mason bike train.

A few years ago, bicycling to school was unheard of at Mason. The monthly well-supervised bicycle trains have shown families in the neighborhoods around the school that bicycling can be a transportation option, and many have now incorporated bicycling into their own daily travel patterns.

Park and Walk

Something similar to the Bicycle Train can be established for Walking Trains (or Walking "Buses; in fact, the same locations are often appropriate for Park and Walk events. A predetermined parking lot might serves as a meeting area for families who drive, park, and then walk a set distance to school. Some communities require parents to walk with their children, and others have designated adult volunteers to walk groups of children from the parking area to school.

Park and Walk campaigns have the potential to reduce traffic congestion around a school and encourage physical activity both for parents and for children. This strategy is especially helpful for including families who live too far from the school to walk all the way or for those who do not have a safe route to school.

On-campus Walking Activities

In rural areas or other places where it is unsafe or difficult to walk to school, communities can encourage walking on the school campus. For example, school officials can establish walking activities before or after school, during recess, during physical education or during health class. Walk routes on the school grounds provide all students with an opportunity to walk a safe route and to increase their physical activity.

Data Collected